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Draft Environmental Impact Report

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING ENVIRONMENTAL IMPACT REPORT

SCH #96042053

■ ■ ■

Submitted to:
CITY OF BERKELEY

Submitted by:
BRADY AND ASSOCIATES, INC.
PLANNERS AND LANDSCAPE ARCHITECTS

MAY 1997

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In Association With:
ALAN KROPP & ASSOCIATES, INC.
DONALD BALLANTI
EARTH TECH
FEHR & PEERS ASSOCIATES, INC.
ILLINGWORTH & RODKIN
SALLY WOODBRIDGE

MAY 1997

Berkeley Civic Center Urban Design Plan
and
Public Safety Building Draft EIR

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Chapter 1
INTRODUCTION

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In compliance with the California Environmental Quality Act (CEQA), this report describes the environmental consequences of the proposed *Civic Center Urban Design Plan* (proposed program) and the Public Safety Building (proposed project).

This Draft Environmental Impact Report (EIR) analyzes two proposed actions within the same document, as follows:

Civic Center Urban Design Plan

- *Civic Center Urban Design Plan.* The *Civic Center Urban Design Plan* is a broad framework for the future development of the City's Civic Center. As such, this Draft EIR analyzes the Plan at a general, "program" level. The environmental analysis for the proposed program focuses on general environmental consequences that can be expected to follow from the adoption of the plan. The analysis is not as detailed as would be the environmental analysis of a specific development project that might be permitted under the plan.

Public Safety Building

- *Public Safety Building.* The Public Safety Building is the first of the projects to be implemented under the *Civic Center Urban Design Plan.* This Draft EIR analyzes this proposal at a more-detailed, "project" level.

Throughout this compound document, the two marginal symbols shown at the left are used to remind the reader of which of the two proposed actions (*Civic Center Urban Design Plan* or *Public Safety Building*) is being addressed in the text.

This EIR also examines various alternatives to the proposed program and project and recommends a set of mitigation measures to reduce or avoid potentially significant impacts. This environmental analysis will be reviewed and considered for certification by the City of Berkeley prior to the granting of any approvals.

The EIR for the *Berkeley Downtown Plan,*[1] whose planning area includes most of the Civic Center Urban Design Plan planning area, is used as the base of the analysis in this EIR. Impacts identified in this document are those that might be expected from any proposed actions that differ significantly from actions discussed in the EIR for the *Downtown Plan*. In other words, this EIR is "tiered" off of the *Berkeley Downtown Plan EIR.*

A. Project Description

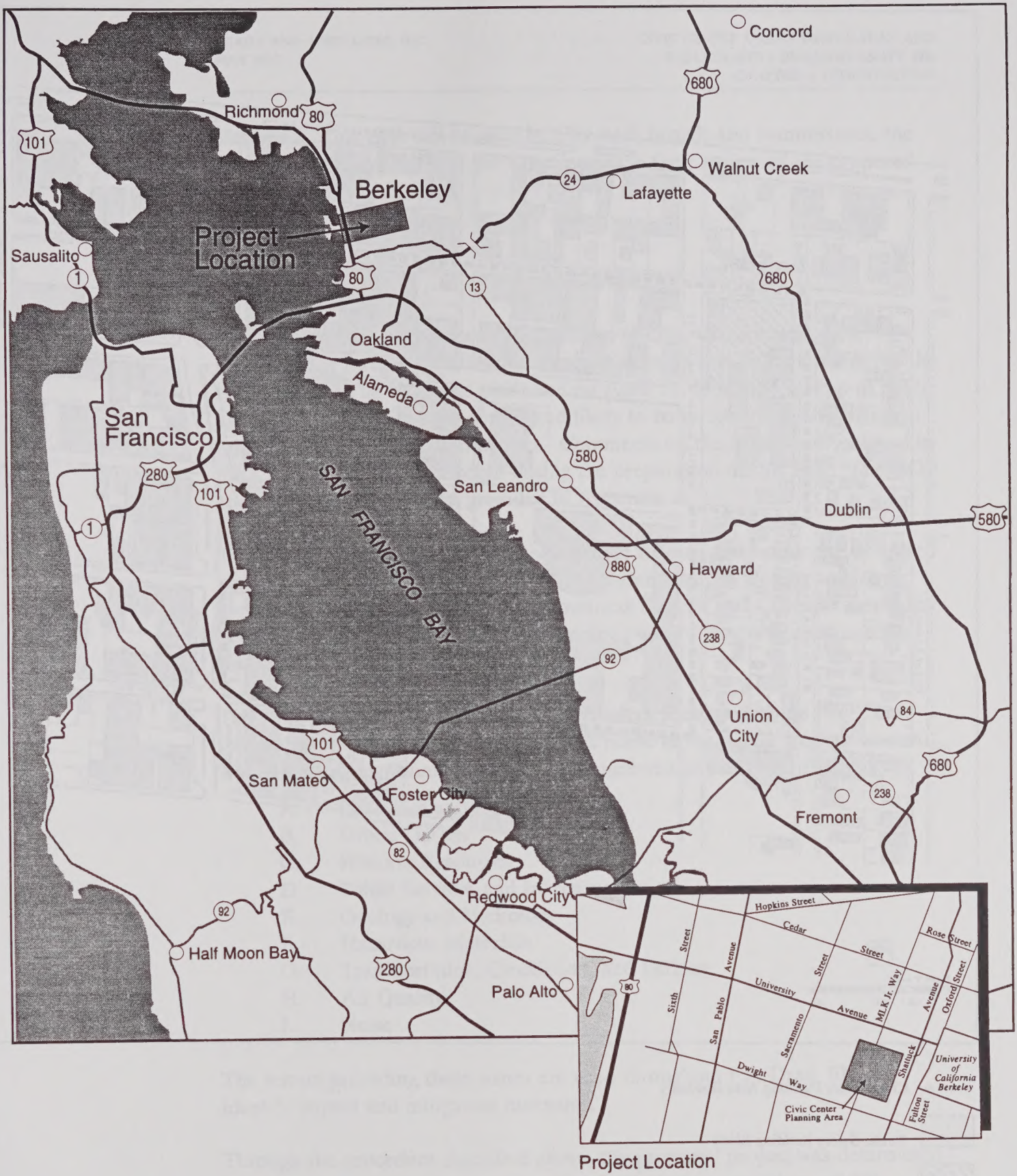
The City of Berkeley is proposing the adoption of the *Civic Center Urban Design Plan* to guide public improvements in the Civic Center for the next 15 to 20 years. It also is proposing to relocate the Police Department, now headquartered in the Hall of Justice, and the Fire Department Administration, now headquartered in the Fire Administration building, from these two seismically unsafe buildings and to consolidate their operations into a new Public Safety Building to be constructed on the block located west of Martin Luther King Jr. Way between Center and Addison streets. Figure 1 shows the City of Berkeley from a regional perspective and the location of the Civic Center within the City. Figure 2 shows a more-detailed view of the location of the Civic Center and the boundaries of the *Civic Center Urban Design Plan* planning area, as well as the location proposed for the new Public Safety Building. A detailed description of the proposed program and project are provided in Chapter 3.

B. Purpose of this EIR

CEQA requires that any proposed action that might have a significant impact on the environment be subjected to a review of the potential environmental impacts that could result. The City of Berkeley determined that preparation of an EIR would be needed to fully address the potential impacts of the proposed program and project.

This EIR is intended to inform City decision-makers, responsible agencies, and the public about the proposed program and project and of the potential consequences of their approval and implementation. This report describes the proposed actions, identifies potential environmental effects, and recommends measures that could be taken to reduce or avoid potentially significant impacts

[1] *Draft Environmental Impact Report for the Berkeley Downtown Plan*. Prepared for the City of Berkeley by Mundie & Associates. March 1989.



Project Location

BERKELEY CIVIC CENTER

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FIGURE 1
REGIONAL LOCATION

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

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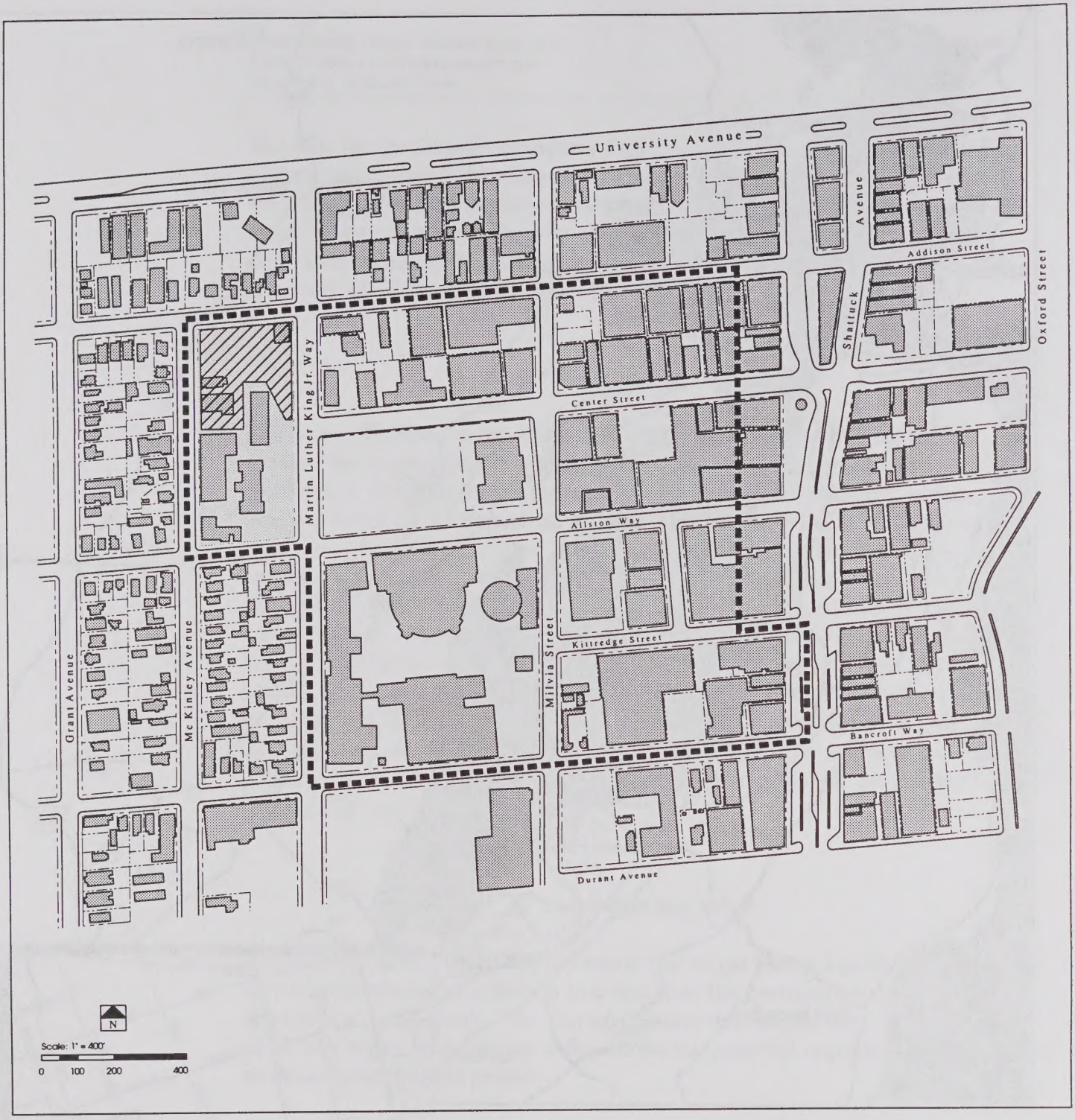

Civic Center Planning Area Boundary

Public Safety Building Block

Proposed Public Safety Building and Parking

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FIGURE 2
CIVIC CENTER PLANNING AREA

identified. This EIR will be used by City staff, boards and commissions, the public, and the members of the City Council in their review of the proposed program and project.

C. EIR Scope

The City circulated a Notice of Preparation (NOP), which contained a checklist that further identified the types of impacts that might result from the two projects. The NOP was published on April 11, 1996, and mailed to public agencies and organizations considered likely to be interested in the potential impacts of the program and project. Comments on the NOP were received by the City and taken into account during the preparation of this EIR. The NOP and its distribution list are provided in Appendix A.

The City of Berkeley also conducted a public scoping session for the proposed program and project on May 9, 1996. Attendance at the scoping session included approximately 20 residents, business owners, and City staff members. Where appropriate, the issues and concerns raised during this session have been addressed in this EIR, as well.

This Draft EIR focuses on the areas of concern identified in the NOP, in comments on the NOP, and in comments made at the public scoping session. The following environmental issues are addressed in this Draft EIR:

A. Land Use and Public Policy
B. Urban Design
C. Historic Resources
D. Public Services and Infrastructure
E. Geology and Hydrology
F. Hazardous Materials
G. Transportation, Circulation, and Parking
H. Air Quality
I. Noise

The letters preceding these issues are used throughout this Draft EIR to identify impact and mitigation measures.

Through the procedure described above, the proposed project was determined not to have significant impacts on cultural resources, vegetation, wildlife, population, housing, or energy use. This Draft EIR does not further analyze these issues.

The environmental analysis for the *Civic Center Urban Design Plan* focuses on the general environmental consequences that can be expected to follow from the adoption of the plan. The analysis is not as detailed as would be the environmental analysis of a specific development project and all future development projects anticipated under the proposed *Civic Center Urban Design Plan* will be subject to additional environmental review. To the extent possible, such review can rely on the background data and impact forecasts provided by this Draft EIR.

The environmental analysis for the Public Safety Building focuses on the project-specific effects that can be expected to follow from construction and operation of this project. The analysis for the proposed Public Safety Building builds upon the background data and impact forecasts of the program-level analysis of the *Civic Center Urban Design Plan*.

D. Supporting Documents

Instead of attempting to fully restate pertinent information from plans, policies, or other documents that contain information directly relevant to the proposed projects, the reader is occasionally referred to the original documents, as permitted under CEQA. This Draft EIR relies upon and incorporates the following documents by reference:

- *Berkeley Master Plan*
- *Berkeley Downtown Plan*
- *Downtown Berkeley Public Improvements Plan* and the *Downtown Urban Design Plan* (contained within the Improvements Plan)
- *Downtown Berkeley Design Guidelines*
- *Design Review Ordinance*
- *Neighborhood Preservation Ordinance*
- *Landmarks Preservation Ordinance*
- *City of Berkeley Zoning Ordinance*

Each of these documents is referenced more fully in Chapter 7.

E. Report Organization

This Draft EIR is organized into the following chapters:

- *Chapter 1—Introduction*, provides a summary of the proposed action and environmental review process and discusses the overall purpose, use, and organization of the EIR.

- *Chapter 2—Summary*, provides a summary of the impacts that would result from implementation of the proposed project and describes mitigation measures recommended to reduce or avoid significant impacts.

- *Chapter 3—Project Description*, provides a description of the proposed program and project.

- *Chapter 4—Setting, Impacts and Mitigation Measures*, describes for each environmental technical topic: the existing conditions (setting); potential environmental impacts and their level of significance; and mitigation measures recommended to mitigate identified impacts. Within each section (e.g., setting) of each topic (e.g., air quality), the "program" level information for the *Civic Center Urban Design Plan* is first presented, followed by "project" level information for the Public Safety Building.

  Potential impacts are identified by levels of significance, as follows: significant and unavoidable impact (SU); significant impact (S); and less than significant impact (LTS). Each impact is categorized before and After implementation of any recommended mitigation measure(s).

  Some potential impacts may result both from the *Civic Center Urban Design Plan* proposal to locate the Public Safety Building at the proposed location and from the project-specific construction and operation of the new facility. In cases where this occurs, this chapter defers the identification and discussion of the impact and mitigation measure(s) to the Public Safety Building portion of the text. (This convention aims to reduce potential redundancy and to ensure as much specificity as possible.)

- *Chapter 5—Alternatives*, provides an evaluation of alternatives to the proposed *Civic Center Urban Design Plan* and to the Public Safety Building project, in addition to the No Project Alternative.

- *Chapter 6—CEQA Required Assessment Conclusions*, discusses the CEQA-required conclusions: cumulative and growth-inducing impacts, significant environmental impacts that cannot be avoided, relationships between local short-term uses of the environment and the maintenance and enhancement of long-term productivity, and significant irreversible environmental effects of the project.

- *Chapter 7—Report Preparation*, identifies the reference documents, publications, and literature reviewed and cited, lists the persons and agencies that were contacted, and provides a summary of those involved in report preparation.

Chapter 2
SUMMARY

■ ■ ■

A. Projects Under Review

This Draft EIR has been prepared to evaluate the environmental impacts of the *Civic Center Urban Design Plan* (proposed program) and the Public Safety Building (proposed project).

This Draft EIR examines the proposed program and project for potentially significant adverse impacts and identifies measures to mitigate impacts that may result from approval of the proposed actions. Additionally, this Draft EIR analyzes cumulative impacts of the project in relation to area-wide development, and general impacts that would result from alternatives to the proposed program and project.

B. Summary of Impacts and Mitigation Measures

This summary provides an overview of the analysis contained in Chapter 4: *Setting, Impacts and Mitigation Measures.* CEQA requires that a summary include discussion of: 1) potential areas of controversy; 2) significant impacts; 3) significant unavoidable impacts; 4) recommended mitigation measures; and 5) alternatives to the project, as follows.

1. Potential Areas of Controversy

The potential areas of controversy surrounding the *Civic Center Urban Design Plan* and the Public Safety Building include: land use and public policy, urban design, historic resources, circulation and parking, and noise. These issues are addressed within the impact analysis sections of this EIR.

2. Significant Impacts

Under CEQA, a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project. As defined by CEQA, these conditions can include land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Implementation of the *Civic Center Urban Design Plan* has the potential to generate a number of environmental impacts. Impacts in the following areas would be significant without the implementation of mitigation measures, but would be reduced to a less than significant level if the mitigation measures noted in this report are implemented:

- Land Use and Public Policy
- Urban Design
- Historic Resources
- Geology and Hydrology
- Hazardous Materials
- Transportation, Circulation, and Parking
- Air Quality
- Noise

Construction and operation of the Public Safety Building also has the potential to generate a number of environmental impacts. Impacts in the following areas would be significant without the implementation of mitigation measures, but would be reduced to a less than significant level if the mitigation measures noted in this report are implemented:

- Land Use and Public Policy
- Urban Design
- Geology and Hydrology
- Transportation, Circulation, and Parking
- Air Quality
- Noise

More detail on significant and less than significant impacts can be found within Table 1 and Table 2, which are provided at the conclusion of this summary. Additionally, Chapter 4 contains the detailed environmental analysis for the above environmental topics.

3. Significant Unavoidable Impacts

Unavoidable significant environmental impacts are those significant impacts that cannot be mitigated to a less than significant level.

Development envisioned by the *Civic Center Urban Design Plan* would result in the demolition of the Framat Lodge, a City Landmark. Because the City cannot ensure that recommended mitigation measures are implemented by the County, this impact must be considered unavoidable.

As described in Chapter 4G: *Transportation, Circulation, and Parking*, the Public Safety Building would result in significant and unavoidable impacts to parking. Construction of the Public Safety Building is expected to cause a net loss of 61 parking spaces. The Police/Fire Departments will gain one space; City staff permit holders will lose 52 spaces; County Court judges will lose seven spaces; and official City vehicle storage spaces will be reduced by three. Though mitigation is proposed in this EIR, this impact would remain significant since replacement of all 61 parking spaces is not anticipated.

Additionally, as described in Chapter 4I: *Noise,* demolition and construction of the Public Safety Building would result in daytime noise levels that would be considered significant. This impact is also considered unavoidable.

4. Recommended Mitigation Measures

This EIR discusses specific mitigation measures that would be implemented by the City of Berkeley and other responsible participants in development of the *Civic Center Urban Design Plan* and the Public Safety Building. These mitigation measures are detailed in Table 1 and Table 2, which are provided at the conclusion of this chapter.

5. Alternatives to the Proposed Actions

CEQA Guidelines require the analysis of a range of alternatives to a proposed project, including a "no project" alternative. This analysis is intended to describe other feasible ways to achieve a proposed project's basic objectives, and to discuss, evaluate, and compare the potential environmental impacts of each. The following alternatives are described and analyzed in Chapter 5: *Alternatives to the Proposed Actions*:

- *Alternatives to the Civic Center Urban Design Plan*. The proposed *Civic Center Urban Design Plan* is a plan for public actions within Berkeley's Civic Center. Since it is a plan for public action, alternatives to it also

need to be formulated around public actions the City can choose to undertake or not undertake. With this in mind, the alternatives discussion in Chapter 5 considers three main alternatives: (1) no *Civic Center Urban Design Plan* (the No Project alternative); (2) the reuse of existing buildings in the Civic Center planning area; and (3) the relocation of new public uses away from the neighborhood.

- *Alternatives to the Public Safety Building*. The Public Safety Building project is a proposal to develop a facility to combine Police and Fire Department operations into a single facility. The alternatives considered in Chapter 5 have been formulated by varying the building's design characteristics or proposed site location. Those alternatives are of two types: two are presented in sufficient detail to allow them to be adopted by the City Council should it choose to do so. They are "full alternatives" in that sufficient definition and analysis is presented in comparison to the proposed project evaluated throughout the rest of this DEIR (which includes a parking structure) to differentiate the impacts and mitigations between the proposed project and the "full alternatives". Should the Council choose to adopt either of these alternatives, no further environmental review would be necessary.

Three other "conceptual" alternatives are also presented in conformance with the requirement of CEQA that alternatives be considered. Should the Council choose to pursue these conceptual alternatives, additional detailed environmental review would be necessary.

The two "full" alternatives include the following:

- The "Stern/Surface Parking" alternative. This alternative combines the most recent facade design with a surface parking option on the site of the existing Hall of Justice and Fire Administration building which are to be demolished. The surface parking alternative was found to be the most financially feasible option available. The Stern design alternative received the preliminary endorsement of the City Council in February, 1997. As of this writing this alternative should be considered the "preferred alternative."
- The "Limited Parking" alternative. During earlier work on this EIR, it was thought that insufficient funds were available to demolish the Hall of Justice and Fire Administration Building and replace them with surface parking. Accordingly, a limited surface parking (20 spaces) alternative was fully evaluated with the parking to be located directly behind the proposed Public Safety Building. To give the Council a full range of choices, this

option is presented in the alternatives section (if insufficient funding is available to complete the demolition of the Hall of Justice and Fire Administration Building, or to replace them with parking, this alternative may be a necessary option).

The conceptual alternatives to the proposed Public Safety Building include: (1) the seismic upgrading and renovation of the Hall of Justice and the Fire Administration Building, and their continued use in their current functions in lieu of construction of the Public Safety Building (the No Project alternative); (2) the construction of the proposed Public Safety Building at its current proposed location at the corner of Martin Luther King Jr. Way and Addison Street, but with its primary access restricted to Martin Luther King Jr. Way opposite Center Street; and (3) the accommodation of the functions planned for the proposed Public Safety Building within a new Civic Center Building to replace the Martin Luther King Jr. Civic Center Building.

Chapter 5 describes and analyzes each of the above alternatives, and identifies the environmentally superior alternative for both the *Civic Center Urban Design Plan* and the Public Safety Building.

C. Summary Tables

Because this EIR analyzes two proposed actions, two summary tables are provided, as described below:

- *Civic Center Urban Design Plan*. Table 1 summarizes the potential impacts resulting from implementation of the *Civic Center Urban Design Plan*. The environmental analysis of the plan has been undertaken at a "program" level. Projects implemented under the *Civic Center Design Plan* may require additional environmental review and mitigation, as directed by several of the mitigation measures.
- *Public Safety Building*. Table 2 summarizes the potential impacts resulting from the construction and operation of the proposed Public Safety Building, which would be the first project implemented under the *Civic Center Urban Design Plan.*

Both Table 1 and Table 2 have been organized to correspond with environmental issues discussed in Chapter 4. The tables are arranged in four columns: 1) impacts; 2) level of significance prior to mitigation measures; 3) mitigation measures; and 4) level of significance after mitigation. A series of mitigation measures is noted where more than one mitigation measure is

required to achieve a less than significant impact, and alternative mitigation measures are identified when available. For a complete description of potential impacts and recommended mitigation measures, please refer to the detailed, topic-by-topic discussions in Chapter 4.

Table 1
CIVIC CENTER URBAN DESIGN PLAN
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
A. LAND USE AND PUBLIC POLICY			
A-CC-1: Construction of the new Alameda County Municipal Courthouse on the site proposed in the *Civic Center Urban Design Plan* would require the removal of residential uses on the site.	S	A-CC-1: The City shall work with the County to provide replacement housing in the affected neighborhood for any housing that might be demolished by the County Courthouse Project.	LTS
A-CC-2: The *Civic Center Urban Design Plan* will foreclose opportunities to accommodate housing in a few locations in the downtown area.	LTS	*No mitigation is necessary for this less than significant impact.*	
A-CC-3: Proposed development under the *Civic Center Urban Design Plan* would require the removal of commercial buildings in the planning area.	LTS	*No mitigation is necessary for this less than significant impact.*	
B. URBAN DESIGN			
B-CC-1: The seismic strengthening and expansion of the Martin Luther King Jr. Civic Center Building has the potential to significantly change the design character of the eastern edge of the Civic Center and the Martin Luther King Jr. Park.	S	B-CC-1: All new development in the Civic Center planning area shall be required to meet the applicable guidelines of the *Downtown Berkeley Design Guidelines* and requirements of the *Landmarks Preservation Ordinance.*	LTS
B-CC-2: The consolidation of parcels for the new County Courthouse Building will alter existing development patterns on the site.	LTS	*No mitigation is necessary for this less than significant impact.*	

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 1: CIVIC CENTER URBAN DESIGN PLAN *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
C. HISTORIC RESOURCES			
C-CC-1: Development envisioned by the *Civic Center Urban Design Plan* (specifically, the proposed Alameda County Courthouse) would result in the demolition of the Framat Lodge, a structure that has been designated a City Landmark by the City Landmarks Preservation Commission.	S	C-CC-1a: Further research into the historic resource value of the Framat Lodge should be undertaken prior to approval of the Alameda County Courthouse. The Courthouse will be the subject of a project-level environmental review in mid-1997. Demolition or alteration of the Framat Lodge should only be allowed if it can be found that acceptable mitigation measures can be developed. One such mitigation measure might include incorporation of the Framat Lodge exterior features into the design of the new courthouse. This could only occur as long as the architectural program needs and overall design of the courthouse would not be seriously compromised. Alternatively, funding for restoration of other nearby historic structures deemed more significant than the Framat Lodge (i.e., Old City Hall or the Veterans Memorial Building) could be provided by the County. The specific fee would have to be negotiated between the City and the County.	SU

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 1: CIVIC CENTER URBAN DESIGN PLAN *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
C-CC-1 *continued*		C-CC-1b: The Landmarks Preservation Commission shall review the proposed demolition of all non-residential structures greater than 40 years old to determine if they are historically significant structures. In addition, the City will comply with all state and federal laws relating to historic resources. Demolition or alteration of structures within the Civic Center that may be historically significant will be considered a less-than-significant impact only if it can be found that the structure is not a significant resource, or that acceptable mitigation measures can be developed.	SU
C-CC-2: Proposed additions and renovations to the Martin Luther King Jr. Civic Center building have the potential to change the historic character of the building and its relationship to Martin Luther King Jr. Park.	S	C-CC-2: The LPC shall review the proposed alteration, modification or demolition of the Martin Luther King Jr. Civic Center Building in accordance with the provisions of the *Landmarks Preservation Ordinance.* Any changes to the building and park shall be historically sensitive, and shall conform to the Landmarks Preservation Ordinance and all applicable historic preservation regulations.	LTS
D. PUBLIC UTILITIES AND INFRASTRUCTURE			
No significant impacts to public services and infrastructure are anticipated.			
E. GEOLOGY AND HYDROLOGY			
E-CC-1: Ground shaking could result in hazards to property and life within the Civic Center planning area if new buildings are not properly engineered.	S	E-CC-1. New development and improvements within the Civic Center shall require a site-specific seismic response study.	LTS
E-CC-2: Any building foundations or other improvements that might be placed on either the old channel of Strawberry Creek or the current culvert could experience significant distress and potential loss of support under either seismic or non-seismic conditions. This condition could result in hazards to property or life.	S	E-CC-2: For any new construction that is proposed within the alignment of Strawberry Creek, remedial measures such as building underpinning, removal and re-compaction of loose fill, and/or removal and reconstruction of culverts, shall be taken within the original stream channel, and the existing culvert.	LTS

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 1: CIVIC CENTER URBAN DESIGN PLAN *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
E-CC-3: New construction of basements or underground facilities could result in hazards to property and life due to high groundwater conditions.	S	E-CC-3: Where existing or proposed facilities include improvements or foundations at or near the groundwater level, site specific studies should be performed to provide more detailed information regarding the groundwater location. Site-specific measures may be required to prevent hazards related to high groundwater, including temporary shoring, de-watering, or other water diversion measures.	LTS
E-CC-4: During swelling and shrinking of expansive soils, foundations or other improvements that derive support from these materials can be damaged. In addition, when expansive soils are used as engineered fill or structural backfill, they are very difficult to compact because they retain high levels of moisture.	S	E-CC-4: Where expansive soils are present in areas of new construction, site-specific studies shall be performed by a geotechnical engineer to provide recommendations to minimize future damage.	LTS
F. HAZARDOUS MATERIALS			
F-CC-1: Development in the Civic Center planning area could result in the release of hazardous materials.	S	F-CC-1: Prior to demolition or construction of specific projects proposed under the *Civic Center Urban Design Plan,* a Phase I Site Assessment shall be performed for the specific development site, and site-specific mitigation measures shall be developed as necessary.	LTS
G. TRANSPORTATION, CIRCULATION AND PARKING			
G-CC-1: Implementation of the projects identified in the *Civic Center Urban Design Plan* will increase parking demand; the plan also identifies locations for the provision of an estimated 467 additional parking spaces.	S	G-CC-1a: The City shall conduct a parking demand study prior to, or in conjunction with, advance planning for a new parking facility at the Oxford Street/Allston Way site. This study would provide the data necessary to determine whether additional parking is needed, and whether conditions have changed relative to those in the 1989 *Downtown Plan* and the 1992 Parking Conditions Update.	LTS
		G-CC-1b: The City shall require a review of the projected parking demand and code-required supply of all new development projects in the Urban Design Plan area.	

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 1: CIVIC CENTER URBAN DESIGN PLAN *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
G-CC-2: The new uses envisioned by the *Civic Center Urban Design Plan* will generate a net increase of 69 additional PM peak hour trips. These trips will not significantly worsen congestion in the downtown area.	LTS	*No mitigation is required for this less than significant impact.*	LTS
G-CC-3: Implementation of the projects identified in the *Civic Center Urban Design Plan* could encourage auto use and discourage transit use.	S	G-CC-3a: As part of the parking demand study required under Mitigation Measure G-CC-1, the City shall also evaluate the use of parking facilities between long term and short term users and consider the efficacy and practicality of establishing or requiring pricing mechanisms which discourage long term parking. G-CC-3b: The City shall continue to encourage the use of AC Transit by advocating for the maintenance of minimum service standards in Berkeley, public education, and maintenance of safe and secure downtown transit stops.	LTS
H. AIR QUALITY			
H-CC-1: Construction activities such as demolition, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive particulate matter emissions that would affect local air quality.	S	H-CC-1: Environmental review documentation for specific projects proposed in the Civic Center should contain dust-control requirements, like the following. Construction contracts should include the following requirements for *demolition* activities: • Whenever possible, dust-proof chutes should be used for loading construction debris onto trucks. • Watering should be used to control dust generation during demolition of structures and break-up of pavement. • Load beds on all trucks removing debris from the site should be covered. *continued*	LTS

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 1: CIVIC CENTER URBAN DESIGN PLAN *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
H-CC-1 *continued*		Construction contracts should include the following requirements of *construction* activities: • Truck speeds within the site should be limited to 15 MPH to reduce entrainment of dust in the wakes of trucks. • Finished grades should be treated with soil stabilizers or seeded for landscaped areas. • Suspension of dust-producing activities during periods of high winds when dust control measures are unable to avoid visible dust plumes. • During the dry season (May-October) provide equipment and staffing for watering of all exposed or disturbed soil surfaces at least twice daily. • Require daily clean-up of mud and dirt carried onto paved streets from the site. • Any fine materials transported by truck will be covered or wetted down to control dust.	LTS
H-CC-2: New traffic generated by cumulative development would significantly increase regional air pollutant emissions.	S	H-CC-2: The City will continue to vigorously pursue the trip reduction and alternative transportation mode policies contained in the *Berkeley Downtown Plan*. The City's proposed *Civic Center Urban Design Plan* contains additional measures which will further these policies and facilitate transit, walking and bicycling trips.	LTS

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 1: CIVIC CENTER URBAN DESIGN PLAN *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
I. NOISE			
I-CC-1: Noise generated during demolition and construction of buildings allowed under the *Civic Center Urban Design Plan* could potentially affect nearby sensitive receptors and adjacent offices.	S	I-CC-1. Not all construction activities on all projects would result in significant impacts; therefore, a project-specific noise analysis should be performed for each individual development project envisioned under the plan. The noise analyses should predict noise impacts to nearby noise-sensitive land uses and identify mitigation measures to reduce significant noise impacts. Mitigation measures, such as those identified for the construction of the Public Safety Building (discussed below), should be implemented, depending on the incidence of noise impacts and extent of exposure to sensitive receptors. For any construction projects that involve pile driving, special mitigation measures should be examined to reduce the noise impacts.	LTS

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Table 2
PUBLIC SAFETY BUILDING
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
A. LAND USE AND PUBLIC POLICY			
A-PSB-1: The program for the proposed Public Safety Building would create heights and building massing that could block light to adjacent residential uses north of Addison Street.	LTS	*No mitigation is required for this less than significant impact.*	
A-PSB-2: Operation of the Public Safety Building has the potential to affect the use of the adjacent residential land uses on Addison Street.	LTS	A-PSB-2: • Public pedestrian entrances shall be placed so that primary access is from Martin Luther King Jr. Way and away from Addison Street. Public entrances to the building shall also be made visually obvious (through building design and/or signage). • Vehicular access and egress to the site from Addison Street and/or McKinley Avenue shall be restricted to non-public uses associated with the operation of the building, to emergency access, and to the access needs of the sally port. • The City shall install signs directing auto traffic to public parking lots and discouraging the search for on-street parking in the vicinity of the site. • A program to calm traffic on Addison Street, McKinley Avenue, and Allston Way west of Martin Luther King Jr. Way shall be developed in consultation with the adjacent neighborhood.	LTS
A-PSB-3: Construction of the new Public Safety Building will require the removal of a non-residential building.	LTS	*No mitigation is required for this less than significant impact.*	
B. URBAN DESIGN			
No significant impacts to urban design are anticipated.			

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 2: PUBLIC SAFETY BUILDING *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
B. HISTORIC RESOURCES			
No significant impacts to historic resources are anticipated.			
D. PUBLIC SERVICES AND INFRASTRUCTURE			
No significant impacts to public services and infrastructure are anticipated.			
E. GEOLOGY AND HYDROLOGY			
E-PSB-1: Ground shaking could result in hazards to property and life at the Public Safety Building site.	S	E-PSB-1: The project shall be designed to "essential services standards", a level of earthquake-resistent construction that will ensure that the building would remain fully functional during and immediately after a magnitude 7.0 earthquake on the Hayward Fault.	LTS
E-PSB-2: Groundwater infiltration may soften or disturb the foundation soils.	S	E-PSB-2: As necessary, a drainage and/or pumping system shall be required to collect and dispose of infiltrating water to prevent softening or disturbance of the foundation soils.	LTS
E-PSB-3: During swelling and shrinking of expansive soils, foundations or other improvements that derive support from these materials can be damaged.	S	E-PSB-3: The following measures shall be implemented for the proposed Public Safety Building: • If encountered at foundation level, the clay materials at the site shall be sub-excavated, and replaced to prevent significant differential settlements; and • For structures and slabs located near the existing ground surface, over-excavation and re-compaction of existing fills and underlying natural surface soils shall occur within the limits and 10 feet beyond the limits of the proposed buildings.	LTS
F. HAZARDOUS MATERIALS			
No significant impacts to hazardous materials are anticipated.			

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 2: PUBLIC SAFETY BUILDING *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
G. TRANSPORTATION, CIRCULATION AND PARKING			
G-PSB-1: The construction of the Public Safety Building will cause a net loss of an estimated 61 parking spaces. The Police/Fire Departments will gain one space; City staff permit holders will lose 52 spaces; County Court judges will lose seven spaces; and official City vehicle storage spaces will be reduced by three.	S	G-PSB-1: The following measures shall be implemented to mitigate this significant impact: • The City shall attempt to reduce the impact of the 52 lost City permit parking spaces by securing other off-street parking for permit holders. If all 52 spaces are not replaced, this impact will remain significant after mitigation because additional parking in the RPP areas may occur. • The City shall locate off-street spaces for official City vehicle storage, to replace the three spaces lost from the North McKinley lot.	SU
G-PSB-2: The relocation of the Police and Fire Departments to the Public Safety Building will result in minor changes in intersection traffic volumes, including reductions at some locations.	LTS	*No mitigation is required for this less than significant impact.*	
G-PSB-3: Employee and visitor walking trips will shift due to the relocation of the primary site access to Addison Street and Martin Luther King, Jr. Way.	S	G-PSB-3: The City shall install a signal at Center Street/Martin Luther King, Jr. Way.	LTS
G-PSB-4: During construction of the Public Safety Building, heavy trucks travelling to the site and hauling materials off-site would affect circulation and parking on local streets, particularly University Avenue, Martin Luther King, Jr. Way and Addison Street; pedestrian and bicyclist safety could be affected; accelerated pavement deterioration would result from the temporarily higher truck volumes.	S	G-PSB-4: The City shall work with the general construction contractor to implement the following measures to address the impacts outlined above: • Develop a truck routing and construction access plan that identifies the following: 1) off-street construction staging areas and location of construction worker parking; 2) time-of-day limits for construction activity (preferably avoiding the peak hours for employee commuting, for example a 7:00 AM - 4:00 PM work day); 3) designated truck routes for construction vehicles; 4) appropriate traffic controls for guiding traffic and protecting pedestrians and bicyclists during traffic obstructions due to truck maneuvering/loading/unloading. *continued*	LTS

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 2: PUBLIC SAFETY BUILDING *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
G-PSB-4 *continued*	S	The City shall monitor the pavement condition at the following locations (and any others deemed necessary after development of the truck routing plan) before and after project construction, to determine whether a change to the regular maintenance schedule for these roadways is needed due to construction-related pavement damage: • University west of Martin Luther King, Jr. Way • Martin Luther King, Jr. Way between University and Addison • Martin Luther King, Jr. Way between Addison and Dwight • Addison between Martin Luther King, Jr. Way and McKinley • McKinley between Addison and Allston • Allston between McKinley and Martin Luther King, Jr. Way	LTS
Impact G-PSB-5: During construction of the Public Safety Building, 79 existing parking spaces, primarily for official police and fire vehicles, will be temporarily displaced; in addition, construction employees will increase parking demand in the area, reducing the supply in the downtown and/or nearby residential areas.	S	G-PSB-5: To address the construction-period parking impacts, the City shall: • Prepare a construction period parking plan for City vehicles displaced from existing public parking areas. The interim parking plan may include modifying existing street patterns to increase on-street parking (such as diagonal parking on McKinley Street), leasing of vacant sites in the area for temporary off-street parking, or leasing additional parking in existing off-street parking garages. *continued*	SU

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 2: PUBLIC SAFETY BUILDING *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
G-PSB-5 *continued*	S	• Require contractors for the Public Safety Building to provide incentives, to the extent financially feasible, for construction workers to use transit, by issuing passes or subsidies for BART and AC Transit. Although these plans may prove somewhat effective in partially mitigating parking impacts during construction of the project, it is probable that the short term (two years) parking impacts of the project will remain significant.	SU
Impact G-PSB-6: Traffic volumes due to the Public Safety Building, the *Civic Center Urban Design Plan* projects and other reasonably foreseeable growth will cause small increases in delay at the study intersections, but will not cause any change in service levels relative to Existing Plus Project conditions.	LTS	*No mitigation is required for this less than significant impact.*	
H. AIR QUALITY			
H-PSB-1: Construction activities such as demolition, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive particulate matter emissions that would affect local air quality.	S	H-PSB-1: All applicable construction contracts for the Public Safety Building shall contain dust-control requirements. (See Mitigation Measure H-CC-1 above for a list of these requirements.)	LTS
I. NOISE			
I-PSB-1: The potential exists for roof-top mechanical equipment to generate audible noise during the night at nearby residences.	S	I-PSB-1. Mechanical equipment should be selected and oriented such that noise levels at the nearest residences would not exceed 45 dBA. Ventilation exhaust apparatus should be oriented so that they face away from noise sensitive areas and providing adequate shrouding, shielding, and muffling around ventilation systems, including residences across Addison and McKinley.	LTS

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Table 2: PUBLIC SAFETY BUILDING *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
I-PSB-2: Noise generated during demolition and construction of the Public Safety Building would result in daytime noise levels of 70 dBA or higher at nearby residences.	S	I-PSB-2. In order to reduce construction period noise impacts, mitigation measures identified below shall be implemented by all project contractors. These measures shall be included as part of any applicable construction contracts. • Construction activities shall be limited to the hours of 7:00 AM to 5:00 PM weekdays. • An 8-foot high plywood wall should be erected around the entire construction site. • Ingress and egress to the site shall, to extent possible, occur from Martin Luther King Jr. Way and truck access to the site shall avoid streets in residential neighborhoods. • All construction equipment shall be properly maintained and muffled. • "Quiet Package" construction equipment (e.g., compressors and generators) shall be used to the greatest extent possible. • Stationary noise-generating construction equipment such as air compressors shall be located as far as possible from nearby residences and shielded as much as practical. The equipment shall be shielded with temporary noise barriers (e.g., plywood). *continued*	SU

S = Significant; SU = Significant and Unavoidable; LTS = Less Than Significant

Table 2: PUBLIC SAFETY BUILDING *continued*

Environmental Impacts	Level of Significance Prior To Mitigation	Mitigation Measures	Level of Significance With Mitigation
I-PSB-2 *continued*	S	• Unless otherwise necessary, heavy-duty construction equipment shall be staged on that portion of the site adjacent to Martin Luther King Jr. Way, which is furthest away from residences. Idling of this equipment shall be minimized. • Neighbors within three blocks of the construction area shall be notified in writing of the construction schedule. • A "noise disturbance coordinator" who would be responsible for responding to any local complaints regarding construction noise shall be designated. This position could be held by the City's project manager, the on-site construction manager, or some other City representative. The coordinator would determine the cause of all complaints and would require that reasonable measures be implemented to lessen noise impacts. A telephone number of the noise disturbance coordinator shall be conspicuously posted at the construction site fence and on the notification sent to neighbors. Even with these mitigation measures, adverse noise impacts are still likely to occur during the construction period, resulting in a significant unavoidable impact.	SU

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Chapter 3
DESCRIPTION OF THE PROPOSED ACTIONS

■ ■ ■

This Draft Environmental Impact Report (EIR) analyzes two proposed actions within the same document, as follows:

- *Civic Center Urban Design Plan* is a broad framework for the future development of the City's Civic Center. As such, this Draft EIR analyzes the plan at a general, "program" level.
- *Public Safety Building* is the first of the projects to be implemented under the *Civic Center Urban Design Plan*. This Draft EIR analyzes this proposal at a more-detailed, "project" level.

Both of these proposed actions are described in greater detail below.

Civic Center Urban Design Plan

A. Civic Center Urban Design Plan

1. Location

Berkeley's Civic Center is centered on Martin Luther King Jr. Park, and includes the park and the blocks that surround it. The *Berkeley Master Plan*, adopted in 1977, formally defined the Civic Center, but the Civic Center has a much older history (as discussed in Chapter 4C).

The *Civic Center Urban Design Plan* planning area is bounded by Addison Street on the north, Shattuck Avenue on the east (excluding frontage properties on Shattuck Avenue between Addison Street and Kittredge Street), Bancroft Way to the south, and Martin Luther King Jr. Way and McKinley Avenue to the west. Figure 2 (page 4) shows the planning area.

2. Background

The *Berkeley Downtown Plan*, adopted in 1990, called for the development of a plan to tie the various public buildings and uses in the Civic Center into a cohesive Civic Center complex. In 1995, the City Council authorized the development of an urban design plan for the Civic Center, as called for in the

Civic Center Urban Design Plan

Downtown Plan and in recognition of a number of significant public investments anticipated for the area. These anticipated public investments include pre-planning for a new Public Safety Building to house the Berkeley police and fire departments, a proposal for a new Alameda County Municipal Courthouse, the planned expansion of the Berkeley Main Library, and proposed changes to the Berkeley High School campus.

In 1995, the Berkeley City Council initiated work on a design plan for the Civic Center area. The City Council recognized that the scale of public investment represented, if properly coordinated, a rare opportunity to positively affect the aesthetic, economic, and cultural character of the area for future generations.

During the spring and early summer of 1995 a planning team including City staff and the design firm of Simon, Martin-Vegue Winklstein Moris (SMWM) in partnership with John Ellis worked closely with the Mayor's Civic Center Task Force and the Berkeley Planning Commission to develop a design concept for the Civic Center area. The planning team developed alternative design concepts and a series of public workshops addressing the specific needs of the various projects and the broad needs of the Civic Center, Downtown, and surrounding neighborhoods. The work and public workshops culminated in July of 1995 when the City Council approved preferred locations for the City's new Public Safety Building and the County's new Court Building based upon the Civic Center Plan design concept.

The City has also determined that the Martin Luther King Jr. Civic Center building does not meet seismic standards, and has determined that it either needs to be strengthened to meet seismic safety standards or replaced by a new building. While the *Civic Center Urban Design Plan* includes renovation or replacement of the Civic Center Building as one of its elements, the construction program for this element has not yet been determined. In November, 1996, the voters of the City of Berkeley passed Measure S which providing funding to retrofit the existing Civic Center Building as the most cost effective option.

3. Description of the Proposed Program

As the City's guide to public improvements in the Civic Center, the proposed *Civic Center Urban Design Plan* builds upon and complements other public plans for the area. These include the *Berkeley Master Plan*, the *Berkeley Downtown Plan*, the *Downtown Berkeley Public Improvements Plan*, and the *Downtown Berkeley Design Guidelines*.

Civic Center Urban Design Plan

These plans and guidelines establish the overall goals which the *Civic Center Urban Design Plan (CCUDP)* is intended to address and apply to the Civic Center area. These over-arching goals and the conformance of the *CCUDP* with these goals are described in detail in Chapter 4, Section B.

In addition to implementing the goals of the *Berkeley Master Plan* and *Berkeley Downtown Plan,* the *Civic Center Urban Design Plan* has five goals:

1. Clarify Civic Identity and Character: Create a Great Public Room.
2. Engender Civic Image and Design with Strong Architectural and Landscape Design.
3. Enhance Civic Uses and Activities.
4. Facilitate Convenient Access to and through the Civic Center.
5. Improve the Relationship between the Civic Center and Adjacent Districts.

The *Civic Center Urban Design Plan* establishes the preferred locations of planned civic improvements. The plan also establishes relationships among planned and existing civic uses and between these planned and existing civic uses and the rest of the Civic Center, the downtown, and the surrounding neighborhoods. The plan includes design guidelines for the Civic Center as a whole and for the key buildings and planned improvements. The guidelines are intended to direct the creative efforts of urban planners and architects.

The proposed plan contains the following elements, as further detailed in Figures 3, 4 and 5.

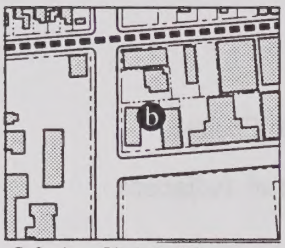
Sub-Area Vicinity Map

a. Public Safety Building. The Public Safety Building element of the plan includes the following components:

- Construction of a Public Safety Building (of approximately 60,000 square feet) to house the Berkeley Police and Fire Departments, which now are housed in the seismically unsafe Hall of Justice and the Fire Administration buildings. The new Public Safety Building is proposed to be constructed on the west side of Martin Luther King Jr. Way between Center and Addison Streets.
- Demolition of the Hall of Justice and the Fire Administration Buildings once their operations are consolidated into the new Public Safety Building.

Civic Center Urban Design Plan

- Relocation of the McKinley House to another location on the block bounded by Addison, McKinley, Allston and Martin Luther King Jr. Way.
- Demolition of the office building at the southwest corner of the intersection of Martin Luther King Jr. Way and Addison Street to make way for construction of the Public Safety Building.
- Demolition of the Alameda County Courthouse upon completion of a new courthouse, which is the next element of the *CCUDP*, described below.



Sub-Area Vicinity Map

b. Alameda County Courthouse. The County of Alameda's plan to consolidate and expand the existing County Court facilities in the Civic Center represents an opportunity to add a major new civic building to the Civic Center. The proposed location for the new building on the northeast corner of Center Street and Martin Luther King Jr. Way places the new court across the street from the new public safety building and completes the street wall along Center Street. The new Court building would replace the existing PG&E building, an existing apartment building, the language school and depending on the ultimate size of the Court facility, the Framat Lodge (Buddhist Institute).

The Alameda County Courthouse element of the plan includes the following components:

- Demolition of the PG&E Service Center, the apartments at 1907 Center Street adjacent to the Veteran's Memorial Building, the Language Arts College on Martin Luther King Jr. Way, and, possibly, the Framat Lodge on the northwest corner of the intersection of Martin Luther King Jr. Way and Addison Street.
- Consolidation of court functions and activities into a single building in the Civic Center and facing onto Civic Center Park.
- An architectural design that provides a clear presence and identity for the judicial branch on the Civic Center Park adjacent to the City's Public Safety Building.
- An architectural design that respects and relates to the Veteran's Memorial Building, Old City Hall, the Community Theater, and the new Public Safety Building design.
- An architectural design that continues the Center Street "street wall" created by the Veterans Building and the State Office building and respects the 40-foot high Veterans Building, Old City Hall, and new Public Safety Building cornice lines.

NEW PUBLIC SAFETY BUILDING

Functions of the existing Hall of Justice and Fire Administration buildings will be housed in a single, 60,000 square foot facility constructed to the highest seismic standards. The building will serve as a "gateway" to the Civic Center.

NEW COUNTY COURTHOUSE

The proposed 117,000 square foot five story building will provide nine court rooms, and allow for both consolidation and expansion of court facilities. Located here, the courthouse will complete the "great civic room" of the Civic Center. An historically sensitive design will be critical for success.

VETERANS' BUILDING

Built in 1928, this building establishes a strong civic architectural style along Center Street. Plans calls for restoration, seismic improvement and adaptive reuse particularly suited to ongoing community activities and services.

CIVIC CENTER PARK

The Park and surrounding civic buildings are the symbolic center of Berkeley, and should reflect a high quality of landscape design and diversity of activities. Elements for preservation include the formal design and axis, open space, and accessibility. Relocation of the tot lot, addition of a small pavilion, and "daylighting" of Strawberry Creek will be examined.

RESIDENTIAL NEIGHBORHOOD BUFFER

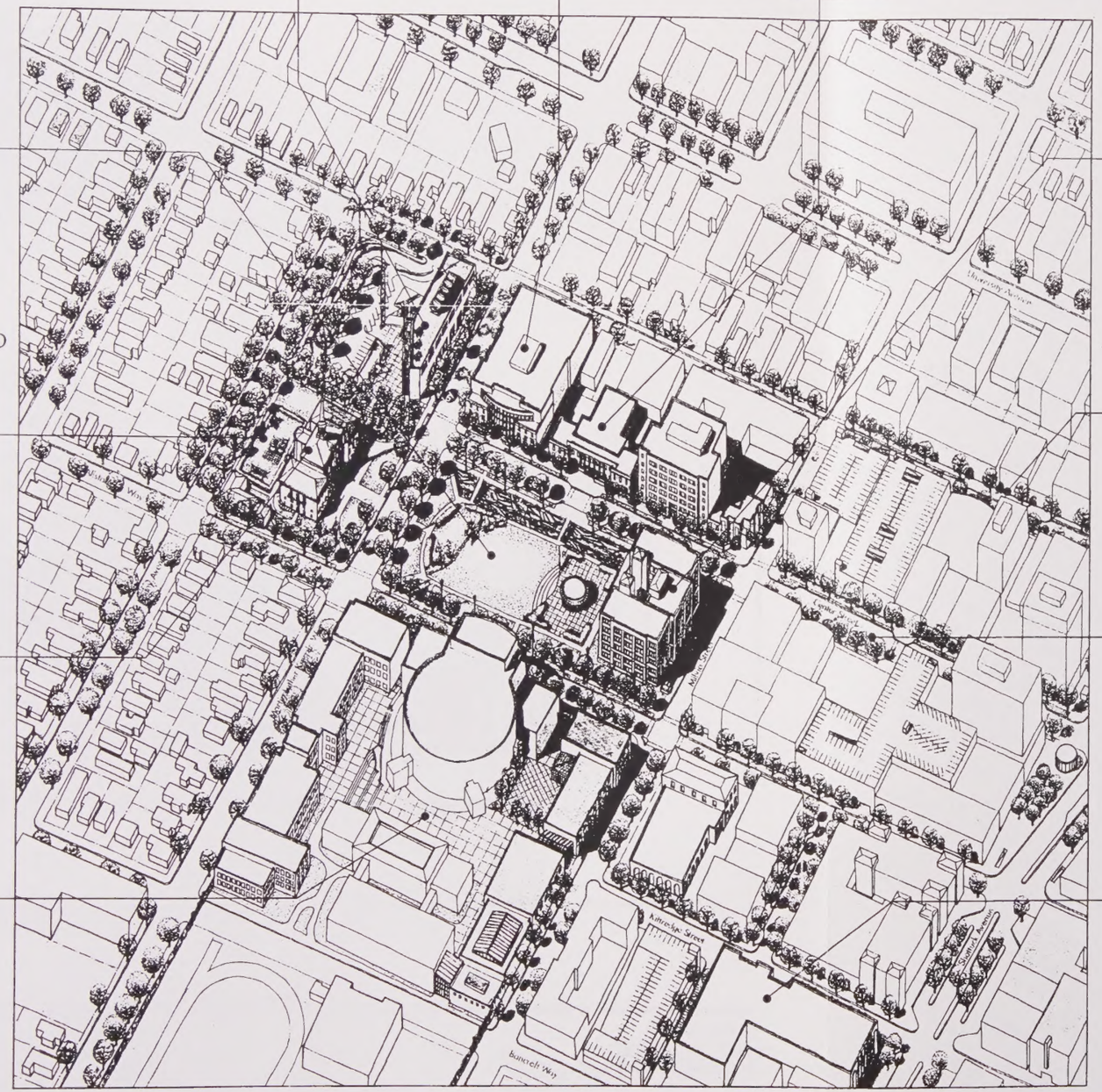
The Plan calls for additional buffer elements to mitigate impacts between the neighborhood and civic uses, such as the relocation of the tot lot from the Park to McKinley Avenue, landscaped setbacks, and reduced traffic volumes on Addison Street.

OLD CITY HALL

Arthur Brown's 1908 masterpiece is the architectural focus of the Civic Center. Proposed improvements include seismic reinforcement, removal of the additions at the rear of the building, and the possible construction of two wings to the north and south, as originally designed.

BERKELEY HIGH SCHOOL

The Plan seeks to strengthen the relationship between the campus and the Civic Center through location and construction of distinguished educational buildings of civic character, with active "gateways" or entrances into the Civic Center.



CIVIC CENTER BUILDING

The short-term goal is to provide adequate seismic strengthening. The long-term goal is to consolidate City offices, moving some from off-site locations, through an expansion of the existing facility, from 90,000 to 120,000 square feet, or through the construction of a new more efficient facility.

ARTS DISTRICT

This district provides a diversity of artistic and cultural activities contributing to the vitality and 24 hour use of the Civic Center. Future enhancements include streetscape improvements, "gateway" treatments, and expansion of art and performance activities into the Civic Center.

STREETSCAPE IMPROVEMENTS

Both the Downtown Plan and Public Improvements Plan recommend streetscape improvements. Additional street trees, pedestrian lighting, and sidewalk widening are proposed to enhance pedestrian connections between the Civic Center, Downtown and the University.

LIBRARY RETROFIT/ EXPANSION

The Central Branch of the Berkeley Public Library needs seismic renovation, disability access improvements and expansion. The proposed 97,000 square foot, horizontal addition along Kittredge Street will retain the historic character and Art Deco style of the existing building.

CITY OF BERKELEY

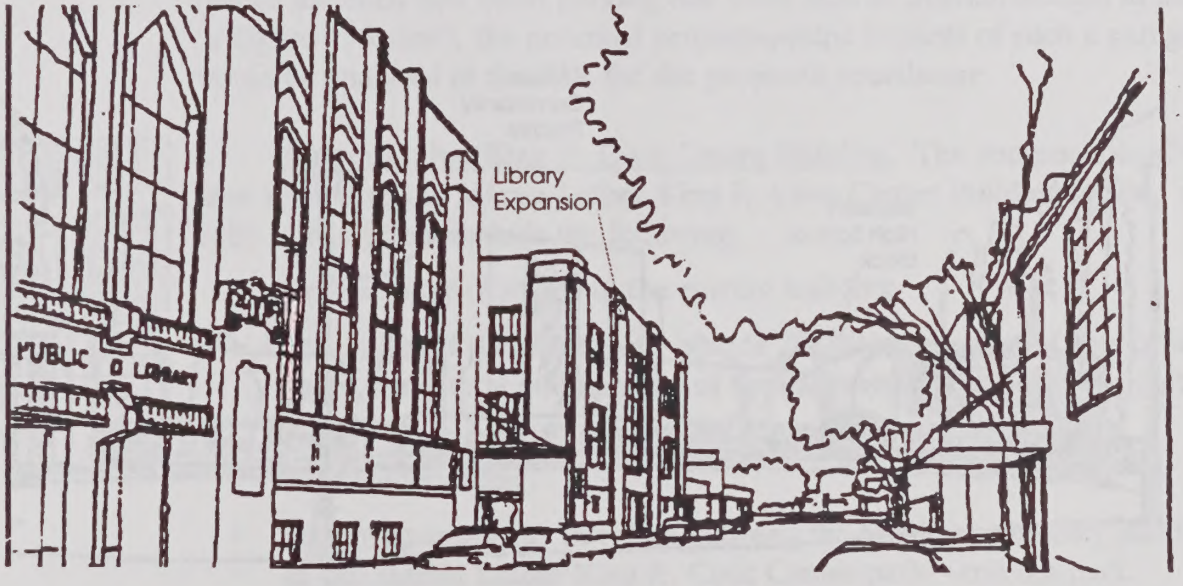
Shirley Dean
Mayor
James R. Keene, Jr.
City Manager
Jeff Horowitz
Planning Commission Chair
Gil Kelley
Planning and Development Director

FIGURE 3
CIVIC CENTER
URBAN DESIGN CONCEPT

BERKELEY CIVIC CENTER
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

View Along Milvia St. towards the remodeled Civic Center building.

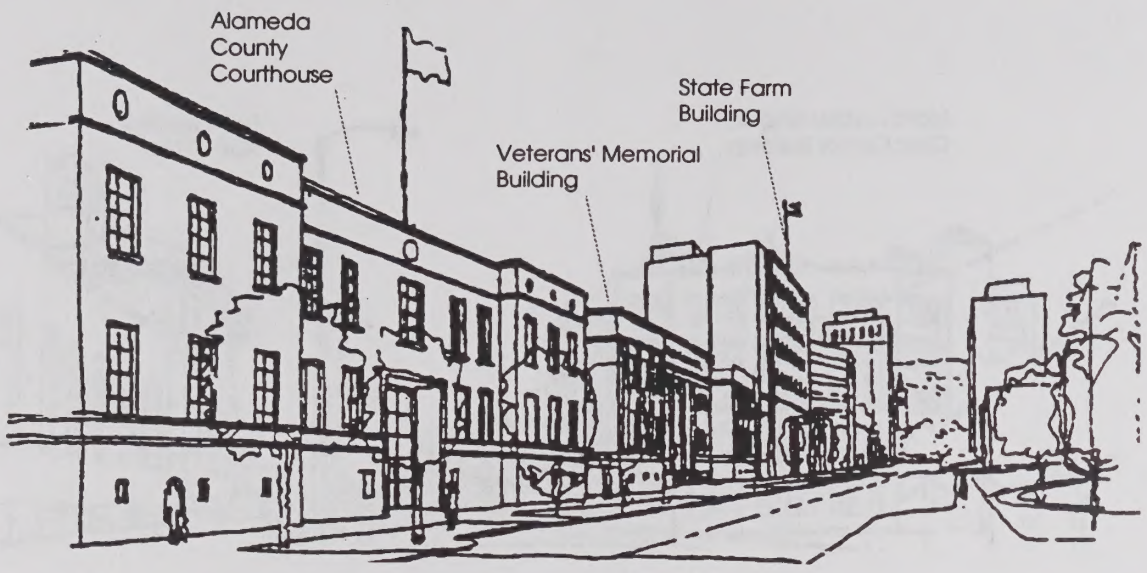


View down Kittredge St. with Berkeley Central Library & Expansion Beyond.

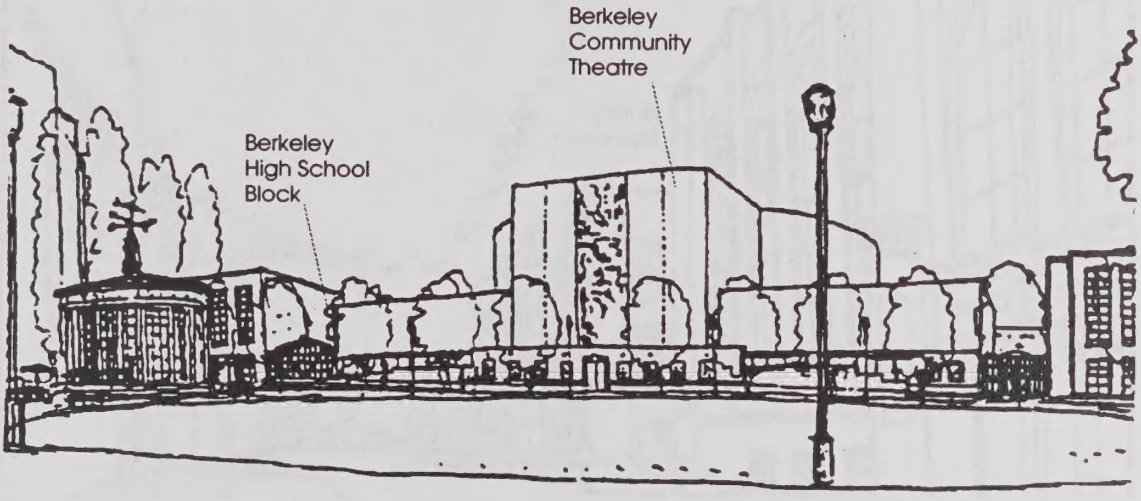
Source: Simon Martin-Vegue Winkelstein Moris / John Ellis, July 1995

BERKELEY CIVIC CENTER
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 4
CIVIC CENTER
ILLUSTRATIVE DETAILS



View up Center St. facing the proposed County Courts Building.



View across Martin Luther King Park towards the Community Theater.

Source: Simon Martin-Vegue Winkelstein Moris / John Ellis, July 1995

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 5
CIVIC CENTER
ILLUSTRATIVE DETAILS

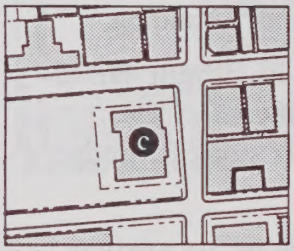
BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Civic Center Urban Design Plan

- Placement of major ceremonial entrances on the Park.
- An architectural design that creates a "gateway" into the area from University Avenue and architecturally balances the new Public Safety Building across the street.
- Utilization and improvement of the Center Street pedestrian corridor to BART and AC Transit for jury and employee access to the building.
- Placement of additional required parking in a public parking garage located between the new court building and downtown or in satellite parking lots outside of the downtown area.

The plan acknowledges that the County has not completed their final building program, but that the most recent draft program included a plan for a five-story, nine-court building. Square footage is not available at this time.

Recent discussions with County representatives have included consideration of a new garage at the northeast corner of the Martin Luther King Jr. Way/ Addison Street intersection. While not specifically analyzed in this EIR (which assumed new court parking one block east at Milvia/Addison as shown in Figure 19 below), the potential project-specific impacts of such a garage would be analyzed in the EIR for the proposed courthouse.



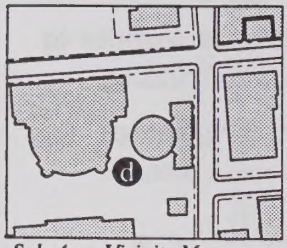
Sub-Area Vicinity Map

c. Martin Luther King Jr. Civic Center Building. The components of the plan related to the Martin Luther King Jr. Civic Center Building located at 2180 Milvia Street include the following:

- Seismic improvements to the current building.
- Expansion of the building to include 20,000 square feet of new office space, for a total building size of approximately 120,000 square feet.
- Consolidation of City offices into the seismically improved and expanded building.
- Improvement of the interface between the building—the only building in the Martin Luther King Jr. Civic Center park—and the park.
- Acknowledgement of the axis between the building and Old City Hall, which runs west to east through the park.

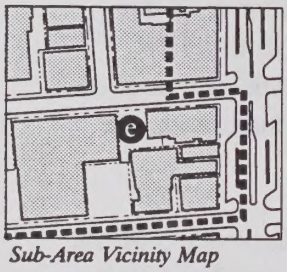
Civic Center Urban Design Plan

d. Berkeley High School Campus. The plan acknowledges the School District's plans for the Berkeley High School Campus, and makes recommendations for improvements intended to strengthen the inter-relationship between the Campus and the Civic Center. This element includes the following components:



Sub-Area Vicinity Map

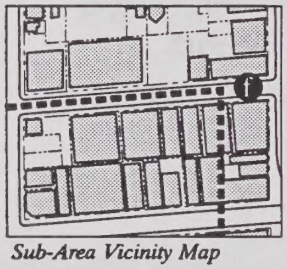
- Recommendations for the development of clearly defined gateways between the campus and the Civic Center.
- Recommendations for the replacement of portable buildings at the corner of Allston Way and Milvia Street with a building with a strong presence that relates to and addresses the Civic Center.
- Recommendations for the replacement of the boiler room and steel smoke stack on the Milvia Street frontage with a building or buildings that have a strong presence that relates to and addresses the Civic Center and that provide clearly defined gateways between the campus and Milvia Street.



Sub-Area Vicinity Map

e. Berkeley Main Library. The plan acknowledges the Public Library's plans for seismic improvement and expansion. It is emphasized that the Library project provides an opportunity to reinforce and improve the links between the Library and Civic Center and acknowledges the importance of the Library to the civic life of the community. It recommends the following:

- Support for the seismic improvement of the current library building.
- Support for the expansion of the library building from its current 49,540 square feet of space to a total of 109,500 square feet of space. The plan recommends that this expansion occur horizontally along Kittredge Street, rather than vertically above the building.
- Respecting the historic character and architectural style of the existing building.
- Providing for an architectural statement or vista at the terminus of Harold Way.
- Creation of a "Library Lane" between Kittredge and Bancroft for deliveries and inter-block access.



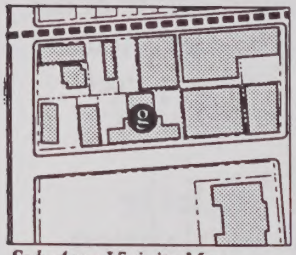
Sub-Area Vicinity Map

f. Addison Street Arts District. The plan supports the development of the Addison Street Arts District along Addison Street between Milvia Street and Shattuck Avenue, as recommended in the *Downtown Plan*. In addition, the *Civic Center Urban Design Plan* recommends:

- Gateways at the two ends of the Arts District.

Civic Center Urban Design Plan

- Expansion of the activities of the Arts District into Civic Center Park, the Veteran's Memorial Building, and the Community Theater on the Berkeley High School Campus.

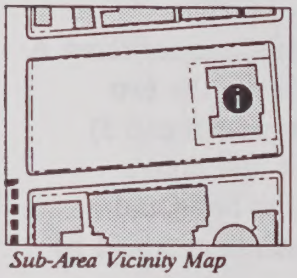


Sub-Area Vicinity Map

g. Veteran's Memorial Building. The plan supports the restoration and seismic improvement of the Veteran's Memorial Building, with programs, services and improvements consistent with other Civic Center uses and the Addison Street Arts District.

Sub-Area Vicinity Map

h. Old City Hall. The plan recommends for further evaluation the restoration and seismic improvement of Old City Hall located at 2134 Martin Luther King Jr. Way, including the potential addition of the two wings originally designed as part of the building to accommodate some City government offices.



Sub-Area Vicinity Map

i. Martin Luther King Jr. Way Civic Center Park. The plan proposes the following for the Civic Center Park.

- Recognition of the original design of the park.
- Improvement of the interface between the Martin Luther King Jr. Civic Center Building and the park.
- Reestablishment of the axis between Old City Hall and the Martin Luther King Jr. Civic Center Building.
- Reestablishment of the axis between the Berkeley Community Theater and the Veteran's Memorial Building.
- Recognition and enhancement of the Park as a large, central, public open space.
- Relocation of the tot lot from the Park.
- Redesign of the park and its plantings to strengthen the Park's civic function.
- Restoration or replacement of the fountain, which is not presently operational.

4. Required Approvals for *Civic Center Urban Design Plan*

The *Civic Center Urban Design Plan* is meant to be a "General Plan" level policy document guiding development in the Civic Center Area. After certification of this EIR, the Council may approve a resolution adopting the *CCUDP* as the policy of the City Council.

Public Safety Building

B. Public Safety Building

1. Location

The site for the proposed Public Safety Building is the northeast corner of the Old City Hall block at the corner of Martin Luther King Jr. Way and Addison Street, as shown on Figure 6. The entire 3.47-acre block is a single parcel owned by the City of Berkeley (Assessor's Parcel Number 57-2017-16-1).

The site of the proposed Public Safety Building currently is occupied by surface parking lots and by a building that houses two public social services and a private non-profit social service. Remaining areas of the block house Old City Hall, City Hall Annex, the Hall of Justice, the Fire Administration Building, the Alameda County Municipal Courthouse, the McKinley House, and additional parking.

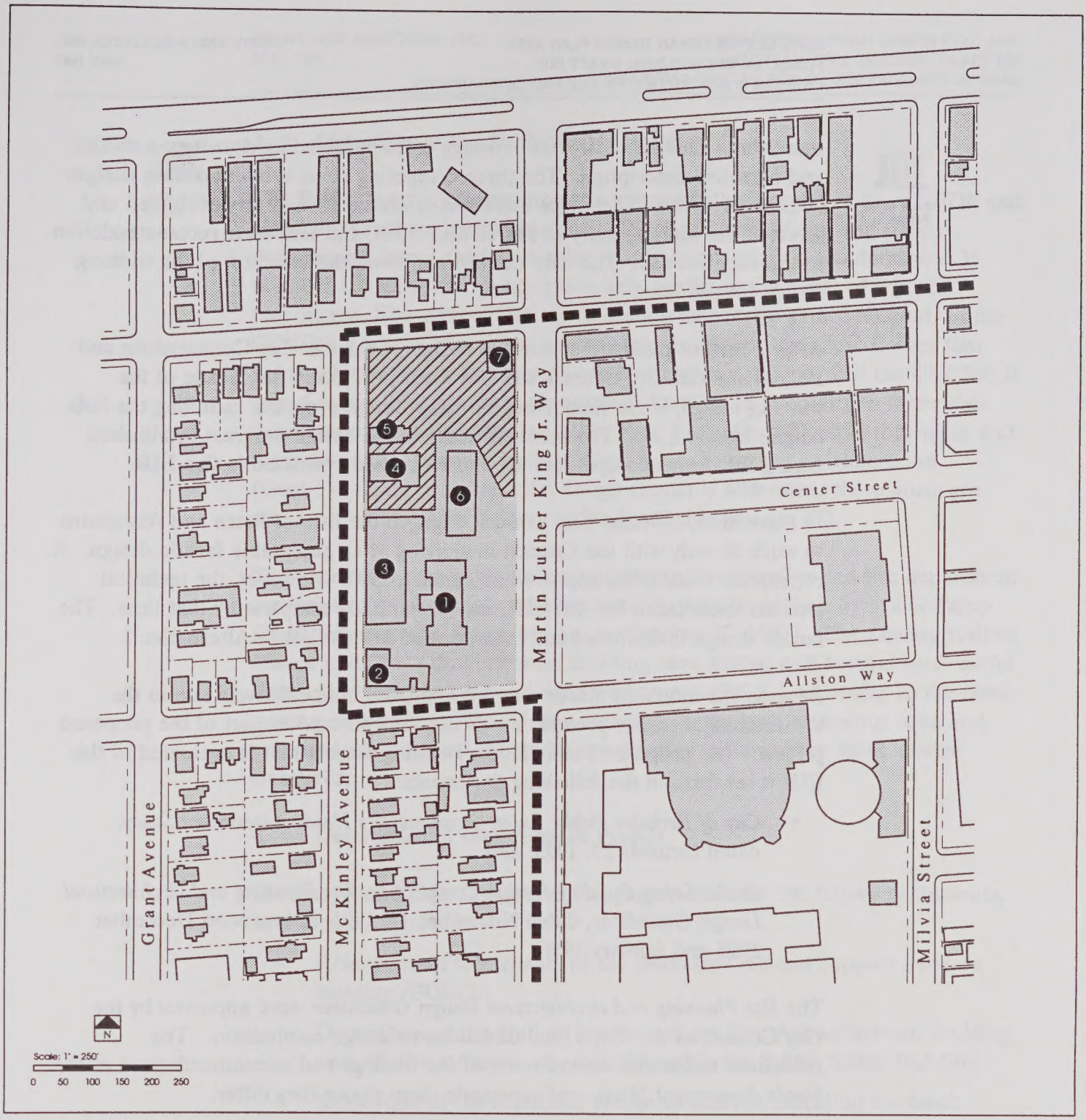
2. Background

The City of Berkeley determined that the existing Hall of Justice and Fire Administration buildings do not meet seismic safety standards, and that they do not meet the needs for a command center in the event of public emergencies such as earthquakes or major fires. To address these concerns, a project was proposed with three major objectives: 1) consolidate the two departments into a single structure that 2) meets seismic standards and 3) provides the City with an adequate, safe facility in the event of a public emergency. To meet these objectives, the City is proposing to build and operate a new Public Safety Building. These two existing buildings would be demolished once the Public Safety Building is completed.

In 1994, the City of Berkeley initiated a planning process for the Civic Center area. This process culminated in the draft *CCUDP* analyzed in this EIR. Based upon the objectives, analysis and recommendations of the *CCUDP*, the City Council adopted a resolution identifying a site generally located at the intersection of Martin Luther King Jr. Way and Center Street adjacent to Old City Hall as the preferred location for a new Public Safety Building.

Subsequently, the City began the process of establishing the needs for the new Public Safety Building. The *Public Safety Headquarters Needs Assessment Study*, completed on October 27, 1995, documents these needs.

In September and October 1995, the City initiated a competition for the design of a Public Safety Building on the City's preferred site. It interviewed six teams in November and selected three finalist firms. It commissioned



Civic Center Planning Area Boundary

Public Safety Building Block

Proposed Public Safety Building and Parking

1. Old City Hall (BUSD)
2. Old City Hall Annex (BUSD)
3. Hall of Justice
4. Fire Administration Building
5. McKinley House
6. Alameda County Municipal Courthouse
7. Public and Non-profit Social Services

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 6
PUBLIC SAFETY BUILDING LOCATION

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Public Safety Building

these three finalists to provide a design concept including drawings, a model, and narrative description. The three competing firms submitted their designs in February 1996. They were exhibited in March 1996, a jury evaluated and selected the winning entry in March and April, and sent their recommendation to the City Council. The City Council approved the selection of the winning design firm in May.

After a further public review of the design by various City Commissions and Boards and the City Council, the City Council rejected the facade of the winning design, while supporting the basic design program, including the bulk, height, location, etc. The basic elements of the design program established during the design competition are those that are evaluated in this EIR.

In November, 1996 the City Council engaged the firm of Stern and Associates to work directly with the Council in arriving at an acceptable facade design. A conceptual facade was approved in January, 1997. However, the technical analysis undertaken for this EIR was substantially complete by that time. The facade design is discussed and incorporated in this EIR in Alternative 1.

Because the modified facade was not approved until relatively late in the environmental review process, it was not incorporated as part of the proposed project. The proposed Public Safety Building project that is evaluated in this EIR is set forth in the following documents:

- *City of Berkeley Public Safety Headquarters Needs Assessment Study*, dated October 27, 1995; and
- *Public Safety Building Design Competition Site Planning and Architectural Design Guidelines*, dated November 14, 1995, as amended December 1995 and January 1996.

The *Site Planning and Architectural Design Guidelines* were approved by the City Council as the City's final directions to design competitors. The guidelines refine and amend some of the findings and recommendations of the *Needs Assessment Study*, and supersede them where they differ.

A generalized site plan, sufficient for project-level environmental review and provided by the City, illustrates the following project characteristics (Figure 7): building footprint, vehicle access points, location of parking, and open space areas.

Public Safety Building

3. Objectives of the Public Safety Building

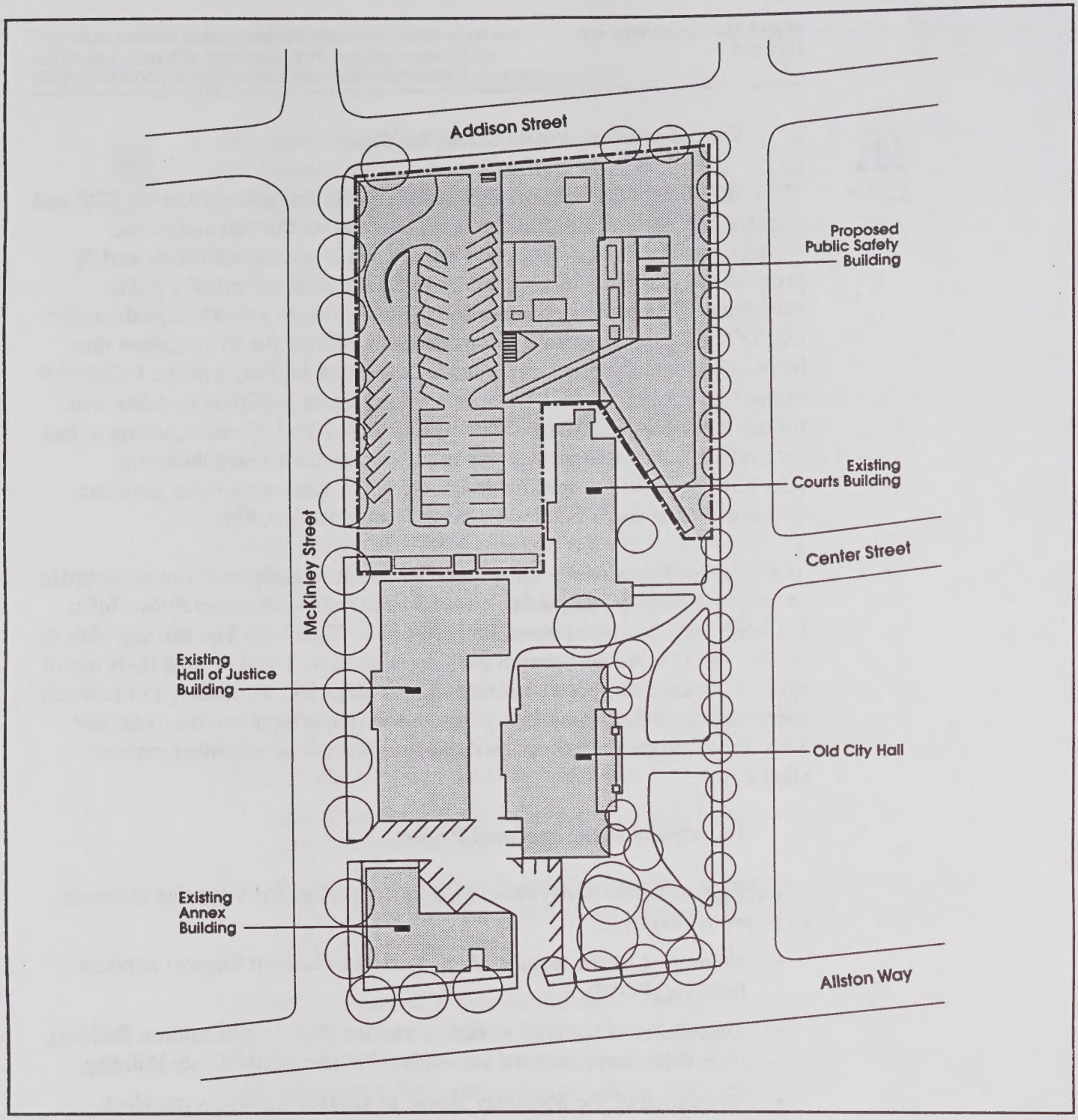
The Public Safety Building project conforms with the goals of the *CCUDP* and aims to meet three major objectives: 1) consolidate the fire and police departments into a single structure that 2) meets seismic standards and 3) provides the City with an adequate, safe facility in the event of a public emergency. The project also meets certain key design principals/goals of the *CCUDP*: it would establish a gateway and an edge to the Civic Center that helps achieve the "public room" identity suggested in Goal 1 of the *CCUDP*; it would retain this important government function in proximity to other civic functions surrounding Martin Luther King Park (Goal 3) while moving it, and focusing entrances and activity, further from the nearby neighborhood (Goal 5). Some of the specific design elements addressing these goals are discussed below under Section F, Design Guidelines (p. 47).

The need for a new public safety building to house police and fire department operations was also analyzed extensively in the *City of Berkeley Public Safety Headquarters Needs Assessment Study* (October 27, 1995). The existing Hall of Justice and Fire Administration Building have served well beyond their useful lives as law enforcement and administration facilities. According to the *Needs Assessment's* authors, the existing buildings suffer from numerous code and security violations and cannot be expanded or renovated to meet current standards.

4. Description of the Proposed Project

The proposed Public Safety Building project includes the following elements, as shown on Figure 7.

- Relocation of the tenants of the Berkeley-Oakland Support Services building (BOSS).
- Demolition of the Hall of Justice and the Fire Administration Building, once their operations are consolidated in the Public Safety Building.
- Relocation of the McKinley House to another parcel on the block bounded by Addison, McKinley, Allston and Martin Luther King Jr. Way.
- Demolition of the building at the southwest corner of the intersection of Martin Luther King Jr. Way and Addison Street to make way for construction of the Public Safety Building.
- The construction and operation of a 67,000 square foot Public Safety Building.



BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 7
PUBLIC SAFETY BUILDING
SITE PLAN

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Public Safety Building

- Construction of an adjacent parking structure for 80 official police and fire vehicles (no public or employee parking) at the northwest corner of the block between the new Public Safety Building and McKinley Street. Access would stem from Addison Street; a gated security access point would connect to McKinley Street.
- Construction of a 160-foot communications antenna.

Other buildings and/or uses on the block and in its vicinity would remain. These include the following:

- Old City Hall and City Hall Annex.
- Surface parking that currently exists on the block south of the McKinley House (36 spaces).
- The two adjunct parking lots west of McKinley Avenue.

Subsequent changes to the Old City Hall block (referred to as "Phase II" of the Public Safety Building project), are analyzed in the cumulative analysis in Chapter 6. The specific timing of their implementation is not yet known and will depend on available funding. These Phase II elements include the following:

- Reconfiguration of McKinley Avenue to provide additional non-public parking for the Public Services Building uses to partially replace the 96 parking spaces removed from the Old City Hall block as a result of the construction of the Public Safety Building.
- Demolition of the Alameda County Municipal Courthouse following the construction of a new Courthouse elsewhere in the Civic Center[1].

5. Project Guidelines

The proposed Public Safety Building is required to meet the following guidelines, which are part of the proposed project.

a. Vehicle Access. Vehicle access to and egress from the 80 spaces of parking provided for the Public Safety Building on the Old City Hall block will be from Addison Street. Parking is to be restricted to non-public parking related to the uses on the block. No public parking is to be provided on the block. Access for emergency vehicles will be available via a gated driveway on McKinley Street.

[1] The City of Berkeley has no control over the County's decision to replace or not to replace the County courthouse, or over the decision to demolish or not demolish the existing courthouse in the event it is replaced.

Public Safety Building

b. Building Orientation. Public entrances and activities are to be placed away from residential neighborhoods, facing Martin Luther King Jr. Way, Center Street, and Martin Luther King Jr. Park.

c. Space Needs and Employees. Except for 2,000 square feet of evidence and property space, the *Needs Assessment Study* projected no need for additional space beyond that now provided in the Hall of Justice and Fire Administration building. The *Needs Assessment Study* projected the need for a building of 60,186 square feet and three to four stories.

The *Needs Assessment Study* projected no increase in staff size for the two departments through the year 2015. It projected that the proposed Public Safety Building will need to accommodate 349 Police and Fire Department employees, the same number now accommodated in the Hall of Justice and the Fire Administration buildings.

Table 3 shows the size of and the number of employees now accommodated in the Hall of Justice and the Fire Administration building. It also shows the size and number of employees that need to be accommodated in the proposed Public Safety Building.

d. Building Height. According to the program for the proposed Public Safety Building, the building can extend to a height of 45 feet without a step back. It can exceed this 45-foot height if the portions of the building above 45 feet are stepped back. It does not set a maximum height for the building, but requires that the Public Safety Building "relate" to the 45-foot height of the Veterans Memorial Building and that it not exceed the height of the roof line of Old City Hall. Any portions of the building adjacent to the residences along Addison Street must be reduced to relate to their height and character.

It should be noted that a 160-foot communication antenna would also be constructed immediately north of the eastern end of the existing McKinley House.

e. Building Setbacks. According to the program for the proposed Public Safety Building, the building can extend to the property line without setback along the first 50 feet of Addison Street, in order to allow it to serve as a gateway to the Civic Center. Other portions of the building along Addison Street must be set back to match the setback of the adjacent residences. The building must to be set back along the Martin Luther King Jr. Way street front, in order to allow for plantings and the development of public open space.

Public Safety Building

Table 3
PUBLIC SAFETY BUILDING SPACE NEEDS

Building/Description	Space (SF)	Employees
Hall of Justice	47,717	319
Fire Administration Building	8,581	30
Total Both Existing Buildings	56,298	349
Proposed Public Safety Building	59,524	349

Source: *Public Safety Headquarters Needs Assessment Study*. Leach Mounce Architects. October 27, 1995.

f. Design Guidelines. The program for the proposed Public Safety Building project requires that the project meet a number of other site planning and architectural design guidelines in addition to those described above. The following summarizes these additional guidelines:[2]

- Strengthen the Civic Center's identity, image, and sense of place, and enhance the physical and visual connections between the Civic Center, Downtown, and the surrounding neighborhoods.
- Reinforce the Civic Center as a composition of distinguished buildings.
  - Reinforce and enhance the form, rhythm, scale, massing, proportions, detailing, and other design characteristics of the landmark buildings in the Civic Center, and provide continuity between the old and the new.
  - Consider base, shaft, and cornice articulation for the building, as in existing buildings in the Civic Center.
  - Articulate windows and other openings.
  - Avoid long, unbroken "institutional" walls, in order to create a pleasant pedestrian experience.
  - Use building materials and color palettes compatible with existing buildings in the Civic Center.
- Respect the scale and character of adjacent residential neighborhoods, and provide continuity between the old and the new.

[2] The complete design guidelines are contained in the *Public Safety Building Design Competition Site Planning and Architectural Design Guidelines*, November 14, 1995.

Public Safety Building

- Reinforce the Civic Center as a "public room" and outdoor public space by using the building to complete the enclosure found of the park elsewhere around the park's perimeter.
- Create a "mature" design with a welcoming public character.
- Transform Old City Hall block into an attractive, landscaped public open space that addresses the demolition of the existing County Courthouse.
- Create a well-landscaped, well-lighted, secure "buffer" to adjacent residential neighborhoods.
- Meet the functional needs of the police and fire departments.
- Meet the budget set forth by the City.
- Meet seismic requirements for an essential services building which means that the building must remain fully functional during and immediately after a major (7.0) earthquake on the Hayward Fault.

6. Required Approvals for Proposed Public Safety Building

A number of approvals would be necessary in order for demolition and construction to begin on the proposed project. These are specified below in the order in which they would typically occur. This environmental analysis applies to all approvals and analyzes their impacts: the EIR would be completed and certified prior to the first discretionary approval.

1. Certification of the Final EIR by the Zoning Adjustments Board.
2. A Use Permit under Section 15.1-3 of the Zoning Ordinance for demolition of the BOSS building at the northeast corner of the site.
3. A Use Permit under Section 15.1-3 of the Zoning Ordinance for demolition of the existing Hall of Justice.
4. A Use Permit under Section 15.1-3 of the Zoning Ordinance for demolition of the existing Fire Administration Building.
5. A Use Permit under Section 15.1(c) of the Zoning Ordinance for construction of the approximately 67,000 square foot Public Safety Building.
6. A Use Permit under Section 15.1(b) of the Zoning Ordinance to establish a parking lot in a residential zoning district.

Public Safety Building

7. A Variance from Section 6.5 to permit a 0-foot front yard setback (Addison Street) where 33 feet are required.

8. A Variance from Section 6.5 to permit a 10-foot east side yard setback where 19 feet are required.

9. A Variance from Section 6.2 to permit the construction of a 48-foot high building where a maximum 35-foot height limit is allowed.

10. A Variance from Section 15.6(q)(4) which states that driveways shall not exceed 20 feet in width at the property line.

11. A Variance from Section 15.6(m)(3) which would require between 87 and 175 parking spaces (after the allowable reduction by the Zoning Adjustments Board).

12. A Variance from Section 15.6-1 which requires two on-site 12-foot by 25-foot loading spaces.

Or, alternatively,

13. For items 6-12, rezone to C-2 District to allow for modified standards.

Chapter 4
SETTING, IMPACTS, AND MITIGATION MEASURES

■ ■ ■

This chapter contains an analysis of each environmental issue and, as such, constitutes the major portion of the Draft EIR. Sections A through I of this chapter describe the environmental setting of the project as it relates to each specific issue, the impacts resulting from implementation of the project and mitigation measures that would reduce impacts of the project.

1. Determination of Significance

Under CEQA, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment.[1] The guidelines implementing CEQA direct that this determination be based on scientific and factual data. This report was prepared using available information, augmented by additional research and field work as needed to adequately address each issue. Each impact and mitigation measure section of this chapter is prefaced by a summary of criteria of significance. These criteria have been developed using Appendix G of the CEQA Guidelines.

2. Issues Addressed in the Draft EIR

Sections A through I of this chapter each analyze the impacts for one of the environmental issues identified during initial analysis and scoping to have the potential to be significantly impacted by the proposed projects. The following environmental issues are addressed:

A. Land Use and Public Policy
B. Urban Design
C. Historic Resources
D. Public Services and Infrastructure
E. Geology and Hydrology
F. Hazardous Materials
G. Transportation, Circulation, and Parking
H. Air Quality
I. Noise

[1] Public Resources Code 21068.

The letters preceding each of these issues are used throughout this EIR to identify impact and mitigation measures. The City of Berkeley determined that the proposed project would not have significant impacts on cultural resources, vegetation, wildlife, population, housing, or energy use. This Draft EIR does not further analyze these issues.

3. Format of Issue Sections

The issue sections have two parts: 1) Setting and 2) Impacts and Mitigation Measures, as described below.

- *Setting*. The setting subsection describes the existing conditions at the time the EIR was prepared. Each setting section first describes existing conditions for the entire Civic Center planning area, and then the existing conditions for the site of the proposed Public Safety Building.
- *Impacts and Mitigation Measures*. The impacts and mitigation measures subsection describes significance criteria and discusses impacts likely to result from the proposed projects. This EIR identifies three types of environmental impacts. Adverse impacts and mitigation measures are first identified for the *Civic Center Urban Design Plan*, following by impacts and mitigation measures for the Public Safety Building.

Adverse impacts are numbered and shown in bold typeface, and the corresponding mitigation measures are numbered and indented. Impacts and mitigation measures are numbered consecutively, and impact and mitigation measures begin with a reference to the chapter section. Additionally, impacts and mitigation measures for the plan and the Public Safety Building are also distinguished: CC for the proposed *Civic Center Urban Design Plan* and PSB for the proposed Public Safety Building. Thus, a land use impact for the *Civic Center Urban Design Plan* would be denoted as Impact A-CC-1, and a geology impact for the Public Safety Building would be denoted as Impact E-PSB-1.

Impacts are also categorized by type of impact as follows:

- S = Significant
- SU = Significant and Unavoidable
- LTS = Less Than Significant

These notations are applied to each impact and each mitigation measure to identify their significance before and after mitigation.

In the event that a potential adverse impact is determined to result from the *Civic Center Urban Design Plan* proposal to locate the Public Safety Building at the proposed location and the proposed impact would occur at the project-specific level, this report refers to the reader to the project-specific impact and mitigation measure.

A. LAND USE AND PUBLIC POLICY

■ ■ ■

This section analyzes the proposed program and project in terms of existing and proposed land use in the area. It uses as its base the land use plans, policies, and ordinances of the City of Berkeley, including the *Berkeley Master Plan*, the *Berkeley Downtown Plan*, and the *City of Berkeley Zoning Ordinance*.

1. Setting

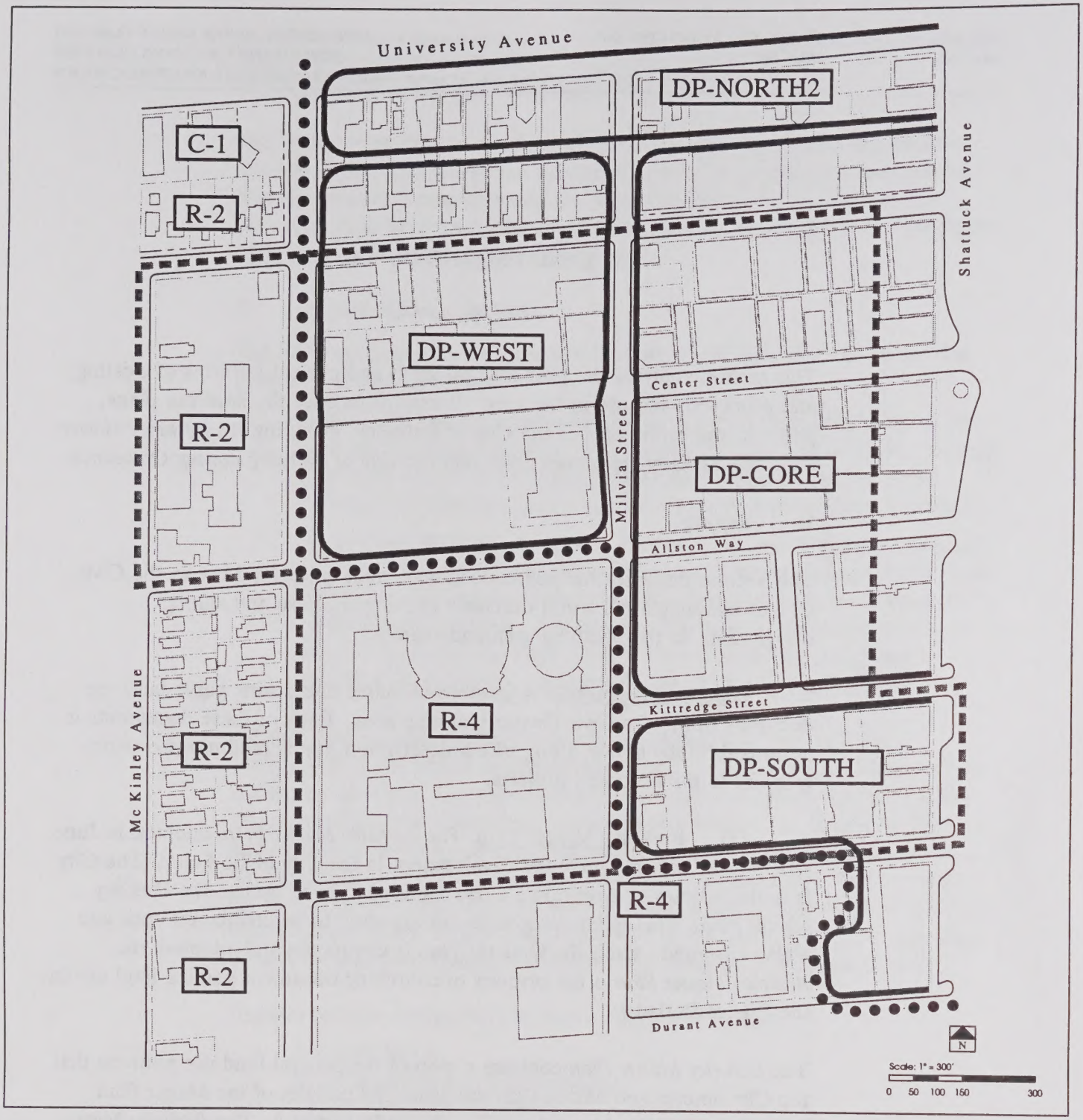
This section discusses the public documents that guide land use in the Civic Center planning area, and it describes existing land use and zoning designations in the planning area and vicinity.

a. Guiding Documents. A number of public documents guide land use decisions within the Civic Center planning area. Each of these documents is described briefly below, along with a description of any land use provisions relevant to the proposed projects.

(1) Berkeley Master Plan. The *Berkeley Master Plan*, adopted in June 1977,[1] is the current guide for development in the City of Berkeley. The City is in the process of developing a new General Plan to update the *Berkeley Master Plan*. The update process is not expected to be completed until late 1996 or beyond. Until the General Plan is completed and adopted, the *Berkeley Master Plan* is the primary over-arching document guiding land use in the City of Berkeley.

The *Berkeley Master Plan* contains a map of the general land use patterns that the City determined best realize the goals and policies of the *Master Plan*. Land use regulations boundaries are shown in Figure 8. The *Berkeley Master Plan* designates the area between Hearst Avenue, Fulton and Oxford streets, Channing Way, and Martin Luther King Jr. Way as the Central [Business] District; and designates the area between what appears to be Addison Street and Allston Way on the western and eastern sides of Martin Luther King Jr. Way as the Civic Center.

[1] City of Berkeley. *City of Berkeley Master Plan.* 1977.



Civic Center Planning Area Boundary

Berkeley Downtown Plan (DP) Boundary

ZONING BOUNDARIES

C-1 General Commercial

R-2 Restricted Two Family Residential

R-4 Multiple Family Residential

Note: Zoning districts for the Downtown Plan area are not shown since these districts are anticipated to be updated to be consistent with the Downtown Plan in the near future.

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FIGURE 8
LAND USE REGULATION BOUNDARIES

The Civic Center planning area includes the Civic Center and portions of the Central [Business] District as defined by the *Berkeley Master Plan*. However, two portions of the Civic Center planning area lie outside of these two districts.

- The portion of the Civic Center planning area south of Allston Way and west of Milvia Street, which is occupied by the Berkeley High School campus, lies within the area designated by the *Master Plan* for high-density residential uses (71 to 120 persons per residential acre).
- The portion of the Civic Center planning area west of Martin Luther King Jr. Way is bordered on its north, west, and south sides by a medium-high density residential district (51 to 70 persons per residential acre).

The remaining areas of the Civic Center planning area are bordered by other portions of the Central [Business] District.

Among other provisions, the land use policies of the *Berkeley Master Plan* call for the City to:

- encourage regional-serving business and appropriate housing in the Central District;
- develop a Civic Center in the area between McKinley Avenue, Addison Street, Milvia Street, and Allston Way, with Martin Luther King Jr. Park as its focal point;
- preserve historic buildings; and
- protect residential neighborhoods from increased densities, traffic, and incompatible development.

(2) Berkeley Downtown Plan. The *Berkeley Downtown Plan*,[2] adopted by the City Council on November 27, 1990, builds upon the *Berkeley Master Plan*, and provides additional, more-specific guidance for development downtown.

Most of the *Civic Center Urban Design Plan* area lies within the *Berkeley Downtown Plan* area, with the exception of the block west of Martin Luther King Jr. Way between Addison and Allston streets (on which the Public Safety Building is proposed), and the Berkeley High School campus.

[2] City of Berkeley. *City of Berkeley Downtown Plan.* 1990.

The *Berkeley Downtown Plan* is a guide for establishing downtown Berkeley "as a compact, economically vital historic City center with a defined core area and transition zones buffering residential neighborhoods." The *Berkeley Downtown Plan* generally recognizes the central commercial (C-2) district planning designations of the *Berkeley Master Plan* and the *Zoning Ordinance*, but recommends amendments to a number of provisions.

Major land use provisions contained in the *Berkeley Downtown Plan* include:

- establishment of commercial, retail, cultural, and entertainment uses in the downtown core;
- non-office commercial, retail and cultural uses on ground-floors in the downtown core;
- institutional or civic uses west of Milvia Street;
- institutional or civic, residential, and small-scale commercial uses along Martin Luther King Jr. Way.
- reductions in building mass and building height to a 4:1 floor-to-area ratio (FAR) and a base height of 65 feet (five stories) in the central core of the downtown, and to a 3:1 FAR and a base height of 40 feet west of Milvia Street;
- one hundred percent lot coverage;
- reductions in required parking, and restrictions on providing parking on site; and
- discouragement of demolition, and encouragement of reuse.

A summary of policies combined in the *Berkeley Downtown Plan* is provided in Appendix B.

(3) Downtown Berkeley Public Improvements Plan. The *Downtown Berkeley Public Improvements Plan*, completed June 1994, is the City's guide for funding and additional planning and design needed to guide public improvements Downtown. The *Improvements Plan* proposes the development of Center Street and Allston Way (the two east to west streets that bracket Martin Luther King Jr. Park) as a strong pedestrian corridor link between the Civic Center, the Downtown, and the University of California campus.

(4) City of Berkeley Zoning Ordinance. The *City of Berkeley Zoning Ordinance* implements the policies of the *Berkeley Master Plan* and certain other of the City's plans, policies, and ordinances. The provisions of the *Berkeley Downtown Plan* are not yet incorporated into the *Zoning Ordinance*. As a result, a project's consistency with the *Berkeley Downtown Plan* currently

is ensured through development review by the Zoning Adjustments Board through the Use Permit process. The Zoning Adjustments Board administers the provisions of the *Zoning Ordinance*, and has the power to grant, deny, conditionally approve, or modify applications for Use Permits and Variances, including those previously issued.

Zoning designations within the Civic Center planning area and vicinity, and the general provisions of each designation, are described below and shown in Figure 9.

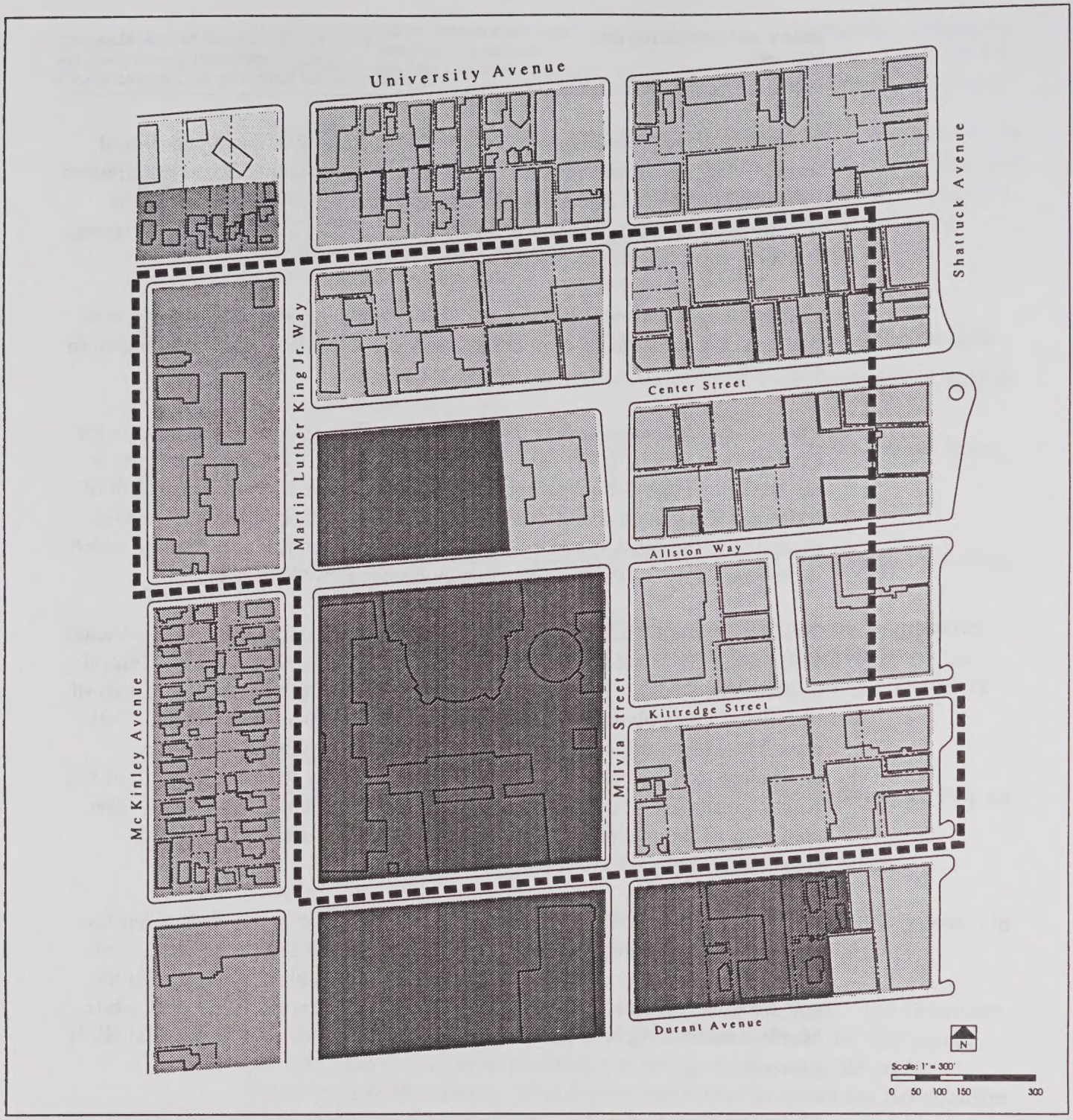
The *Zoning Ordinance* designates most of the Civic Center planning area for Central Commercial (C-2) uses, with two exceptions. The first exception is the Berkeley High School campus and Martin Luther King Jr. Park, both of which are designated for Multi-Family Residential (R-4) uses. The second exception is the block on which the Public Safety Building is proposed, which is designated for Restricted Two-Family Residential (R-2) uses.

The area north of the Civic Center planning area is designated for Restricted Residential (R-2) uses west of Martin Luther King Jr. Way, and for Central Commercial (C-2) uses east of Martin Luther King Jr. Way. The area east of the Civic Center planning area is designated for Central Commercial (C-2) uses. The area south of the planning area fronting Shattuck Avenue is designated for Central Commercial (C-2) uses, while other areas south of the planning area are designated for Multi-Family Residential (R-4) uses. The area west of the planning area is designated for Restricted Two-Family Residential (R-2) uses.

The block on which the Public Safety Building is proposed is designated for Restricted Two-Family Residential (R-2) uses, as are the areas north, west, and south of this block. The area to the east of this block between Center and Addison streets is designated for Central Commercial (C-2) uses, while Martin Luther King Jr. Park is designated for Multi-Family Residential (R-4) uses.

Major provisions of each of these zoning designations are outlined below.

(a) Central Commercial (C-2) District. The Central Commercial (C-2) district is the City's most intense commercial development zone. It provides for a wide range of uses serving a City-wide clientele. This includes residential uses, retail sales, personal and household services, and offices uses. Public uses are permitted in all districts. In addition, the Central Commercial (C-2) District encourages ground floor commercial use, the utilization of public transit, and full lot coverage without setback, and provides less



Planning Area Boundary

C-1

C-2

R-2

R-4

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 9
ZONING

480-002

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

restrictive building height limits (generally 100 feet) and higher floor area ratios (up to 6:1 with a Use Permit).

(b) Multi-Family Residential (R-4) District. The purpose of the multi-family residential (R-4) district is to:

- implement the *Berkeley Master Plan* by encouraging development of relatively high-density residential uses (71 to 120 persons per residential acre), characterized by less-intense and more-open development than is found in high density residential districts;
- make housing available for people who want both convenience of location and a reasonable amount of usable open space;
- protect adjacent properties from unreasonable obstruction to light and air;
- permit the construction of residential structures such as apartment hotels, hotels, and motels that provide housing opportunities for transient or seasonal residents; and
- permit the construction of institutions and office buildings when such uses will not be detrimental to the immediate neighborhood.

(c) Restricted Two-Family Residential (R-2) District. The purpose of the Restricted Two-Family Residential (R-2) district is to:

- implement the *Berkeley Master Plan* by encouraging the development of low-medium density residential uses (51 to 70 persons per residential acre) characterized by reasonably open and spacious development with a pattern of housing ranging from single-family to duplexes and small apartments;
- make housing available for people who want a range of housing choices with a relatively large amount of open space;
- protect adjacent properties from unreasonable obstruction of light and air; and
- permit the construction of family boarding houses for the aged when such will not be detrimental to the immediate neighborhood.

(5) Neighborhood Preservation Ordinance (NPO). The NPO is a citizen-approved measure that has been in place since April 1973. It is intended to preserve and enhance neighborhood character through the regulation of residential demolition. The NPO is intended to protect existing affordable housing.

Most of the provisions of the NPO have been incorporated into the *Zoning Ordinance*, but Section 5, Interim Building Demolition Regulations, still directs the City's actions on demolition of residential structures. The NPO requires a demolition permit, and allows the City to grant demolition permits for residential structures only under clearly defined findings. The findings that must be made are set forth in the Impacts and Mitigation discussion of this section of the report, which follows.

b. Existing Land Use. The Civic Center Planning Area (see Figure 8) includes many of the City of Berkeley's governmental facilities and Berkeley High School as well as commercial and residential uses. As illustrated on Figure 10, land uses in the Civic Center include the following.

(1) Institutional, Public and Semi-Public Uses. Institutional, public, and semi-public uses predominate in the Civic Center planning area and include the following.[3]

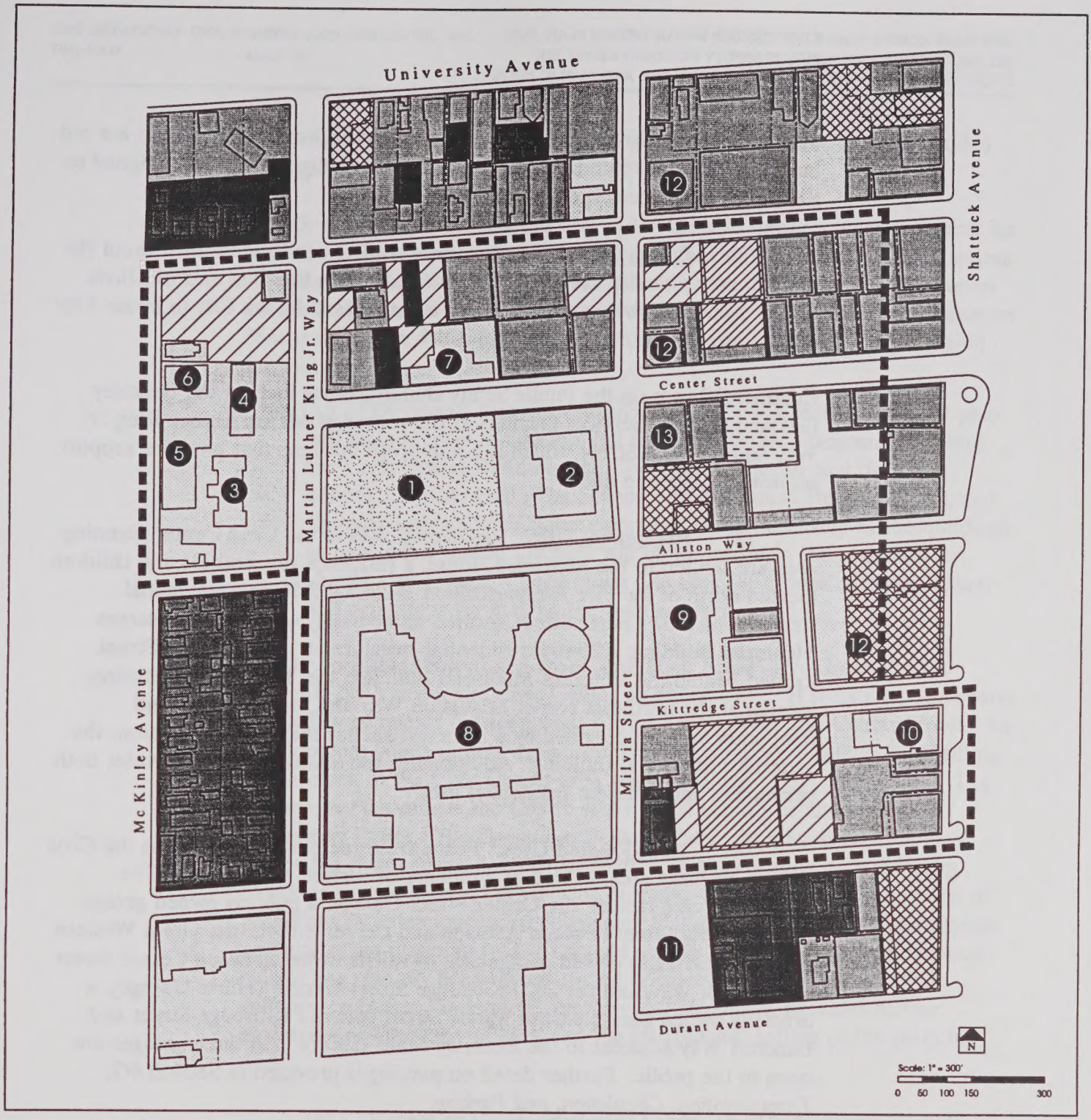
- Berkeley High School
- Berkeley Unified School District Administrative Offices (Old City Hall)
- Berkeley High School Professional Development Center (Old City Hall Annex)
- Berkeley Hall of Justice
- Berkeley Fire Administration Building
- Alameda County Municipal Court Building
- Martin Luther King Jr. Civic Center Building
- Berkeley Main Library
- Berkeley Main Post Office
- Veteran's Memorial Building

Institutional uses also include the offices of the City of Berkeley Mental Health Program and the offices of Berkeley Place, a county program that provides services to the hearing impaired, both of which are housed in a building on the southwest corner of Martin Luther King Jr. Way and Addison Street.

Some City departments also lease private commercial office space throughout the Civic Center, since there is not now adequate space within the Martin Luther King Jr. Civic Center Building to accommodate all City employees.

The block upon which the Public Safety Building is proposed is a single parcel, which is owned by the City of Berkeley. This block is used almost

[3] Photographs of these buildings are provided in Section C, *Historical Resources.*



1. MLK Jr. Park
2. MLK Jr. Civic Center
3. Old City Hall/BUSD
4. County Courthouse
5. Hall of Justice
6. Fire Admin. Bldg.
7. Veterans Mem. Bldg.
8. Community Theatre/H.S.
9. Main Post Office
10. Public Library
11. Tennis Courts
12. Leased Space (City)
13. Leased Space (Courts)

- Planning Area Boundary
- Public and Institutional
- Commercial (Including Office and Retail)
- Residential
- Mixed Use (Commercial and Residential)

OPEN SPACE
- Park
- Vacant

PARKING
- Open Lot
- Structure

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
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FIGURE 10
EXISTING LAND USE

entirely for institutional uses. Most of the portions of this block that are not built upon are taken up by surface parking lots that primarily are assigned to the institutional uses on the block.

(2) Commercial Uses. Commercial uses are located throughout the Civic Center planning area, but are concentrated in the area east of Milvia Street. Some of this commercial space is also leased by the City to house City employees.

Commercial uses on the Public Safety Building block include the Berkeley Oakland Support Services facilities at the corner of Martin Luther King Jr. Way and Addison Street, which is a non-profit business that provides support services for those in need.

(3) Residential Uses. Residential uses in the Civic Center planning area are limited to the McKinley House, a residence for mothers and children located north of the Fire Administration Building; a 16-unit residential structure at 1907 Center Street, located immediately west of the Veterans Memorial Building; a 20-unit residential structure at 1912 Addison Street, located behind the Veterans Memorial Building; the YMCA coed housing, located at the northeast corner of Allston Way and Milvia Street; and temporary housing provided by a homeless shelter that is operated from the Veteran's Memorial Building. Additionally, the Shattuck Hotel provides both permanent and transient residential uses.

(4) Auto-Related Uses. There are three parking garages in the Civic Center planning area, as well as a number of surface parking lots. The parking garages include the Center Street Garage, a publicly owned garage east of Milvia Street between Addison and Center Streets, the Great Western Garage, a privately owned garage east of Milvia Street between Center Street and Allston Way, and the 2020 Kittredge Street Garage (Hinks Garage), a privately owned garage east of Milvia Street between Kittredge Street and Bancroft Way adjacent to the Berkeley Main Library. All three garages are open to the public. Further detail on parking is provided in Section 4G, *Transportation, Circulation, and Parking.*

(5) Open Space. The major open space in the downtown area is the Martin Luther King Jr. Civic Center Park, which serves the surrounding buildings (including Berkeley High School), the nearby neighborhood, and the downtown as a whole. It is the only expanse of green, landscaped vegetation within the downtown, although the University of California campus to the

immediate east does provide extensive grassy areas and more rustic wooded settings.[4]

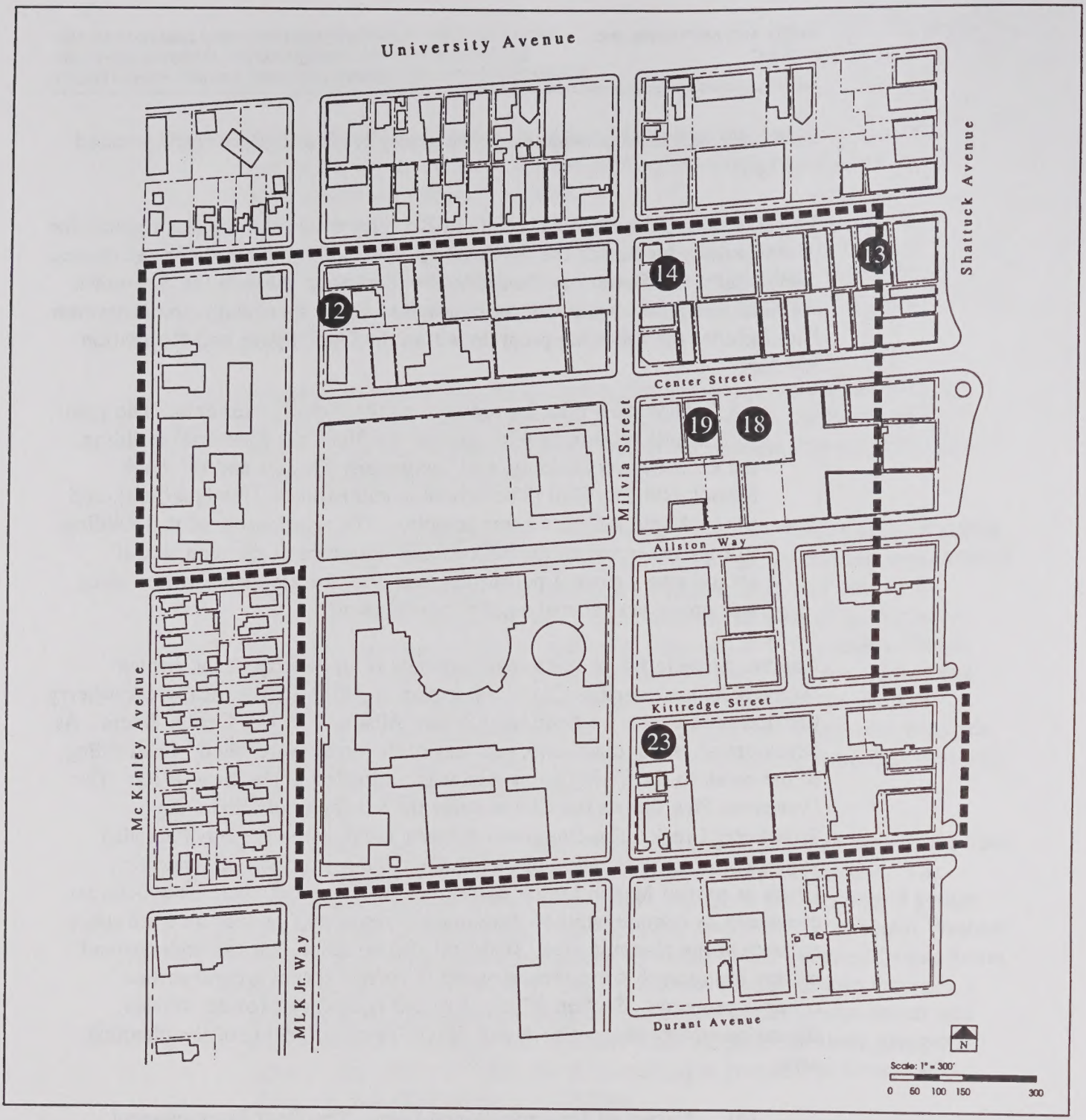
The *Downtown Plan* directs the City of Berkeley to develop pleasant places for pedestrians by increasing the utility of, and desirability of existing open spaces. Additionally, the *Downtown Plan* identifies that open space in the downtown area includes public areas like the sidewalks. More specifically, the *Downtown Plan* includes the following program within the Open Space and Recreation Element:

> 3.5.7. Develop a plan for redesigning the Civic Center area. The plan will include ways to develop and tie the Veterans Memorial Building, the Civic Center Building, and Community Theater and the High School, Old City Hall (The School Administration Headquarters), and the park into a Civic Center complex. The relationship of the buildings to each other and to the park will be improved in the plan, and it should also include a performing arts area for groups of various sizes, and provisions for making the fountain work.

Another possible future open space amenity is Strawberry Creek (which currently flows under the Civic Center planning area). Historically, Strawberry Creek flowed openly between what is now Allston Way and Center Street. As development began downtown, portions of the creek were filled. Final filling of the creek in the Civic Center area was completed in the early 1930s. The *Downtown Plan* directs the City to study the feasibility of uncovering Strawberry Creek. The *Downtown Berkeley Public Improvements Plan* also makes the recommendation of reclamation and restoration of Strawberry Creek as part of Martin Luther King Jr. Park. However, there have been no provisions or commitments to developing Strawberry Creek as an open space amenity in the planning area. It should also be noted that the underground culvert has recently been reconstructed to correct recent ground surface collapse problems. Section 4E, *Geology and Hydrology*, provides further discussion of Strawberry Creek and the hydrological setting of the planning area.

(6) Vacant or Underdeveloped Lands. The *Draft Environmental Impact Report for the Berkeley Downtown Plan* identified six vacant or underdeveloped parcels within the Civic Center planning area. A portion of one of these parcels has been developed: the southern portion of the parcel east of the old YMCA building, into which the new YMCA facility has been expanded. The rest of this parcel, as well as the remaining five parcels, are still vacant or underdeveloped, as shown in Figure 11.

[4] *Berkeley Downtown Plan*. Page 62. City of Berkeley Planning Department. October 1990.



Civic Center Planning Area Boundary

12 Vacant or Underdeveloped Parcels
(Numbers from *Berkeley Downtown Plan EIR*, 1990)

BERKELEY CIVIC CENTER

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FIGURE 11
VACANT OR UNDEVELOPED PARCELS

According to the *Downtown Plan EIR*, these six parcels together represent 76,254 square feet of Central Commercial (C-2) land. If developed as allowed under the alternatives analyzed in the *Downtown Plan EIR*, these six parcels have the potential to accommodate 383,340 to 413,943 square feet of new development.[5] The estimated development potential analyzed in the *Downtown Plan EIR* was intended to represent the full ("worst case") development potential of the identified vacant and underdeveloped parcels downtown at build-out, depending upon alternative. It was not adjusted to reflect actual development levels over time, nor adjusted against other tests of "feasibility."

Historically, development downtown has quite consistently averaged approximately 200,000 square feet per year over the last 30 years.[6] There is little reason to expect that development levels will change substantially during the time frame of the *Civic Center Urban Design Plan*. Therefore, the historic development level of 200,000 square feet per year is assumed over the approximately 15- to 20-year time frame of the *Civic Center Urban Design Plan*. The development potential estimated in the *Downtown Plan EIR* still represents the maximum physical development potential in the downtown area.

There is no vacant land on the block on which the Public Safety Building is proposed, although the block has the potential to accommodate new or newly arranged uses, given its size, configuration, and single ownership.

(7) Adjacent Land Uses. To the north, the Civic Center planning area is bounded by the residential uses fronting Addison Street west of Martin Luther King Jr. Way, and by predominantly commercial uses north of Martin Luther King Jr. Way. To the east it is bounded by the downtown

[5] *Draft EIR for the Berkeley Downtown Plan*. Pages 28 through 38. Mundie & Associates. March 1989. While the Draft EIR analyzed four alternatives of varying levels of development intensity, the figures provided here include the level of development represented by the *maximum bonus* and the *base* alternative. They do not include the level of development represented by the *low-intensity* or the *no project* alternatives.

[6] Personal communication with Lois Jones and Dan Marks, City of Berkeley. March 1996.

commercial core along Shattuck Avenue. On the south it is bounded predominantly by commercial uses and portions of the Berkeley High School campus. To the west it is bounded by single-family and multi-family residential neighborhoods.

The block on which the Public Safety Building is proposed is bounded on the north, west, and south by residential neighborhoods. On the east it is bounded by Martin Luther King Jr. Park and by the commercial uses fronting Martin Luther King Jr. Way between Center and Addison streets.

2. Impacts and Mitigation Measures

The *Civic Center Urban Design Plan* and the Public Safety Building would have a significant impact to land use and public policy if they would:

- Introduce new land uses that would conflict with established uses within the vicinity of the planning area or project site.
- Disrupt or divide the physical arrangement of an established community.
- Conflict with adopted plans, policies and goals of the City.
- Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan. The proposed *Civic Center Urban Design Plan* is generally in conformance with the plans and policies of the City as contained in the *Berkeley Master Plan*, the *Berkeley Downtown Plan*, the *City of Berkeley Zoning Ordinance*, the *Downtown Berkeley Public Improvements Plan*, and other applicable ordinances.

The proposed *Civic Center Urban Design Plan* would strengthen the civic functions of the Civic Center, as called for in both the *Berkeley Master Plan* and the *Berkeley Downtown Plan*. Consolidation of the police and fire functions now housed separately in the Hall of Justice and the Fire Administration Building into the proposed Public Safety Building fronting

Civic Center Urban Design Plan

Martin Luther King Jr. Way between Center and Addison streets would strengthen the connection of these two civic functions with the rest of the Civic Center, and would strengthen the connection between these two civic functions and Martin Luther King Jr. Park, the planned Civic Center focal point or "living room." Consolidation of the Hall of Justice and the Fire Administration Building functions into the new Public Safety Building also would lessen the impacts that the neighborhoods west of McKinley Avenue now experience as a result of the proximity of these two buildings, if this consolidation is coupled with the removal of these two buildings.

Location of the proposed new Alameda County Municipal Courthouse east of Martin Luther King Jr. Way adjacent to the proposed new Public Safety Building and facing Martin Luther King Jr. Park also would strengthen the civic functions of the Civic Center, and it would maintain this civic function within the Civic Center. The location of the new Alameda County Municipal Courthouse at the northeast corner of Martin Luther King Jr. Way and Center Street would retain the current connection between the courthouse and Martin Luther King Jr. Park, and between the Courthouse and other civic functions within the Civic Center.

Expansion of the Martin Luther King Jr. Civic Center building to consolidate the offices of City employees who now work in leased commercial office space elsewhere in the downtown would further strengthen the area's role as the City's Civic Center. It also would return leased commercial office space to the market. Removal of surface parking between the Martin Luther King Jr. Civic Center building and Martin Luther King Jr. Park would allow that area to be redesigned in a way that could strengthen the connection between these two important civic uses.

The *Downtown Plan* and the *Downtown Berkeley Public Improvements Plan* call for a strong connection linking Martin Luther King Jr. Park, the BART Station, and the University of California campus along Center Street and Allston Way. Placement of the proposed Public Safety Building at the western end of Center Street has the potential to provide a strong anchor to this important urban connector street, and to help establish the connection sought by these two plans. Location of a new Alameda County Municipal Courthouse at the corner of Center Street and Martin Luther King Jr. Way would further strengthen this connection.

The proposed plan's impacts on specific land use types within the planning area are analyzed below, beginning with institutional, public, and semi-public land uses. Analysis of residential and commercial land uses follow.

Civic Center Urban Design Plan

(1) Institutional, Public, and Semi-Public Land Uses. Policy C of the *Downtown Plan* directs the City to "[f]ind a location for a Youth Center in the Civic Center area." The *Civic Center Urban Design Plan* does not address the provision of a youth center in the Civic Center. If the provision of such a facility would not need to make use of all or a portion of one of the under-developed sites identified within the Civic Center planning area (that is, that it could be accommodated in an existing facility), then the fact that the proposed *Civic Center Urban Design Plan* does not address the issue, would not preempt its accomplishment in the future, and would have no impact.

According to City staff, the issue of a youth center has been studied and considered at some length, with the conclusion that such a facility would not necessitate the construction of a separate new building.[7]

(2) Residential Land Uses.

Impact A-CC-1: Construction of the new Alameda County Municipal Courthouse on the site proposed in the *Civic Center Urban Design Plan* would require the removal of residential uses on the site. (S)

The *Civic Center Urban Design Plan*'s preferred site for the Alameda County Municipal Courthouse includes the parcel at 1907 Center Street, which contains a 16-unit, two-story residential structure. Depending on the scale of the Courthouse development, the Courthouse site also may include the parcel at 1912 Addison Street, which contains a 20-unit, two-story residential structure.

City policy discourages the demolition of residential structures. Section 5, Interim Building Demolition Regulations, of the NPO (Ordinance No. 4641-N.S.) is the City's policy regarding demolition of residential structures (other sections of the NPO have been incorporated into the *Zoning Ordinance*). While the County, as a public agency, is not required to adhere to the NPO, Section 5 otherwise requires a demolition permit for any residential demolition, and allows the granting of a demolition permit if the City finds the following:

- That the demolition would not be materially detrimental to the housing needs and public interest of the affected neighborhood and the City of Berkeley; and

[7] John Ledbetter, Associate Planner, City of Berkeley, written communication, July 24, 1996.

Civic Center Urban Design Plan

- That the demolition will remove a hazardous, unusable, or un-repairable structure; or
- That the demolition is necessary to permit construction containing at least the same number of housing units as the demolished structure.

Development by the County of Alameda, as an independent governmental agency, is not required to conform with City land use policies. Accordingly, the City cannot require it to make any special findings outside of those required by all governmental agencies under the requirements of the California Environmental Quality Act. An Environmental Impact Report is being prepared for the County Courthouse project which will consider the impacts on housing and recommend appropriate mitigations. But mitigations under the California Environmental Quality Act must address environmental impacts, and may not address the more fine-grain requirements of the NPO regarding detriment to the neighborhood. The following mitigation is recommended:

> Mitigation Measure A-CC-1: The City shall work with the County to provide replacement housing in the affected neighborhood for any housing that might be demolished by the County Courthouse Project. (SU)

However, because the City cannot require the County to provide replacement housing, and because the location of the courthouse as shown in the *CCUDP* is likely to lead to the loss of housing, the *CCUDP* is in conflict with the policy of the City as expressed by the NPO. The proposed mitigation cannot eliminate that conflict and the impact remains significant and unavoidable.

Impact A-CC-2: The *Civic Center Urban Design Plan* will foreclose opportunities to accommodate housing in a few locations in the downtown area. (LTS)

Policy 1.12 of the *Berkeley Master Plan* directs the City to encourage "new residential development in appropriate locations in the Central District and along major commercial arterials." The *CCUDP* identifies several vacant or underutilized sites in the downtown area which it proposes for civic uses rather than housing. Implementation of the *CCUDP* could also lead to the loss of some housing at the proposed County Courthouse site.

However, the *Downtown Plan* refines the policies of the *Master Plan* as it relates to the "downtown" portion of the "Central District." The *Downtown*

Civic Center Urban Design Plan

Plan further subdivides the downtown area into "sub-areas" and establishes land-use objectives and policies for each sub-area.

The boundaries for the *CCUDP* are similar to the boundaries of the "West/Civic Center" sub-area of the *Downtown Plan* (see Figure 8, p. 54). The Downtown Plan land use section does not recommend housing in this particular sub-area (*Downtown Plan*, p. 150-151). Other statements in the plan suggest that the "civic character of the area needs to be strengthened, and the adjacent facilities better utilized." These statements suggest that the proposed sub-area is better suited for civic uses than for housing. Therefore, while the *CCUDP* would foreclose housing opportunities in a few locations in the downtown, this is consistent with the *Downtown Plan* and the impact is considered less than significant; no mitigation is recommended.

(3) Commercial Land Uses.

Impact A-CC-3: Proposed development under the *Civic Center Urban Design Plan* would require the removal of commercial buildings in the planning area. (LTS)

The *CCUDP* would lead to the possible loss of the following commercial buildings:

- County Courthouse project: loss of PG&E Service Center; the American Language Academy at 2105 Martin Luther King Jr. Way and the Institute of Buddhist Studies at 1900 Addison Street.
- City-owned parking structure expansion: loss of the Computer Technology Program building at 2101 Milvia Street and the Baskervilles Hot Dog stand.
- Expansion of parking structure on Milvia between Kittredge and Bancroft Way: the Berkeley Motel; a vacant restaurant building and Yas Automotive.

Section 15.1-3, Demolition of Non-Residential Structures, of the *Zoning Ordinance* is the City's policy regarding demolition of commercial structures. Section 15.1-3(b) requires a Use Permit for demolition of any non-residential building. In order to grant a Use Permit, the City must find that the demolition will not be materially detrimental to the commercial needs and public interest of any affected neighborhood or the City.

Civic Center Urban Design Plan

In addition, the City must find that the demolition:

- is required to permit approved new construction or other approved new use; or
- will remove a structure that is unusable for activities compatible with the purposes of the District, or that is uneconomic to repair for such use; or
- will remove a structure that is an un-abatable attractive nuisance; or
- is required for the furtherance of specific plans or programs sponsored by the City or other local district or authority. In such cases, it shall be demonstrated that obtaining prior or concurrent approval for new construction, or other new use, is not feasible or practical, and that adhering to such a requirement would threaten the viability of the plan or program being proposed.

It is expected that appropriate findings can be made to allow the demolition of the subject buildings.

(4) Open Space. As previously discussed, the major open space in the downtown area is the Martin Luther King Jr. Civic Center Park. It is the only expanse of green, landscaped vegetation within the downtown. The *Civic Center Urban Design Plan* provides for the continued protection of this resource through orienting civic uses and activities around the park, and encouraging the development of civic identity for the Civic Center planning area as a whole. The plan recommends several changes to the Martin Luther King Jr. Civic Center Park, including restoring or replacing the fountain, using park lighting to reinforce the urban design of the area, relocating the tot lot, redesigning several elements of the park, improving landscaping in the area, creating an area for outdoor performances, and creating a small pavilion within the park. All of these proposed improvements would support and develop the importance of the park in the downtown and Civic Center area.

The *Civic Center Urban Design Plan* also proposes the demolition of the existing Alameda County Municipal Courthouse, the Hall of Justice, and the Fire Administration Building. These buildings would be replaced by a new Public Safety Building on the Old City Hall block. These changes would result in a greater amount of open space, and would increase the potential for public use of the open areas within the Civic Center area. Additionally, the new Public Safety Building is to be oriented towards the park, increasing the recognition of the park as an important open space.

Public Safety Building

b. Public Safety Building. The proposed Public Safety Building project is generally in conformance with the plans and policies of the City contained in the *Berkeley Master Plan* and the *City of Berkeley Zoning Ordinance*.

The Public Safety Building lies outside of the planning area of the *Berkeley Downtown Plan*, and is not, therefore, specifically guided by it. However, under the assumption that the block on which the Public Safety Building is proposed is intended to be an integral part of both the downtown and the Civic Center, and that it should therefore attempt to conform with provisions of the *Downtown Plan* as much as feasible, the following discussion considers the proposed Public Safety Building's conformance with the *Downtown Plan*.

Construction and operation of the Public Safety Building on the proposed site would strengthen the civic functions of the Civic Center. Consolidation of the police and fire functions now housed separately in the Hall of Justice and the Fire Administration Building into the proposed Public Safety Building would strengthen the connection of these two civic functions with the rest of the Civic Center, and would strengthen the connection between these two civic functions and Martin Luther King Jr. Park, the planned Civic Center focal point or "living room."

Consolidation also would lessen impacts that the neighborhoods west of McKinley Avenue now experience as a result of the proximity of the two existing buildings to the nearest residences. However, if the Hall of Justice and the Fire Administration Building were not demolished upon consolidation or soon thereafter, these two vacant buildings would have the potential to be substantially detrimental to the surrounding neighborhood.

Development and operation of the proposed Public Safety Building at the corner of Martin Luther King Jr. Way and Addison Street also has the potential to impact the adjacent residential uses north of Addison Street.

Use of the Old City Hall block for civic uses is supported by the current use of the block, its historic use, and by the *Berkeley Master Plan*. Support for its civic use can be implied from the *Berkeley Downtown Plan*, as well. This block has housed civic uses at least since the construction of Old City Hall in 1909. The *Berkeley Master Plan* designates the Public Safety Building site and the entire block within which it is located for Civic Center uses. Indeed, it shows the City's Civic Center centered on Martin Luther King Jr. Way between Center Street and Allston Way.

The *City of Berkeley Zoning Ordinance* designates the entire block on which the Public Safety Building is proposed for Restricted Two-Family Residential

Public Safety Building

(R-2) uses. Section 15.1(c) of the General Provisions of the *Zoning Ordinance* allows public service uses and public buildings in any district with a Use Permit.

The proposed Public Safety Building's impacts on specific land use types within the planning area are analyzed below, beginning with institutional, public, and semi-public land uses. Analysis of residential and commercial land uses follows.

(1) Institutional, Public, and Semi-Public Land Uses. The office building on the site upon which the Public Safety Building is proposed currently houses three institutional programs, including the offices of the City of Berkeley Mental Health Court program and Berkeley Place, a county program that provides services to the hearing-impaired and that manages Casa de la Vida, an off-site shelter. However, there are no City policies or ordinances specifically addressing the removal of institutional uses. Therefore no impact results from such a change.

(2) Residential Land Uses. One of the purposes of the Restricted Residential (R-2) District (which is the current zoning of the Public Safety Building site) is to protect properties from unreasonable obstruction of light and air. The City implements this primarily through building height limits and required building setbacks. The *Design Guidelines* for the Public Safety Building allow the building heights on the Public Safety Building site as follows:

- 45-foot-height without a setback;
- A maximum height not to exceed the Old City Hall roofline with setbacks; and
- A height reduction along Addison Street to relate to the scale of the adjacent residential structures—if required setbacks are increased by the same amount the building exceeds 35 feet.[8]

The *Downtown Plan* also recommends a one-foot increase in setbacks for every foot the building height exceeds 35 feet.

The restricted residential (R-2) district provisions of the *Zoning Ordinance* establish a maximum building height of 28 feet in restricted residential (R-2) districts, but allow a 35-foot building subject to a Use Permit. Section 15.2(a) of the General Provisions of the *Zoning Ordinance* allow public buildings of

[8] City of Berkeley. *Downtown Berkeley Design Guidelines*. July 1994.

Public Safety Building

up to 75 feet, provided that the front, rear, and side yards are increased by one foot for each foot the public building exceeds the permitted height limit (35 feet in R-2 districts).

To meet the provisions of the *Zoning Ordinance*, a 45-foot-tall building, as an example, would require increasing setbacks as follows:[9]

- 30-foot front-yard setback;
- 20-foot side-yard setback; and
- 30-foot rear-yard setback.

Section 15.3(f) of the *Zoning Ordinance* defines the front yard as the narrower of the two dimensions of a lot. The block on which the Public Safety Building is proposed is a single parcel in public ownership, and the *Zoning Ordinance* would define the Addison Street frontage, being the narrower dimension of the block, as the "front yard."

Additionally, the *Downtown Plan* clearly requires setbacks at the side and rear of parcels where property abuts the residential district.

Impact A-PSB-1: The program for the proposed Public Safety Building would create heights and building massing that could block light to adjacent residential uses north of Addison Street. (LTS)

The program for the proposed Public Safety Building provides for the building to extend to the property line without setback along Addison Street, in order to allow it to serve as a gateway to the Civic Center and in order to optimize the design of the adjacent parking structure. It requires the building to be set back along the Martin Luther King Jr. Way street front to allow plantings and the development of public open space.

These provisions have the potential for the proposed Public Safety Building to conflict with the *Zoning Ordinance*, and to adversely affect the provision of light to the adjacent residences north of Addison Street.

A detailed shade study was conducted of the "Stern/Surface Parking" Alternative's impact on residential uses on Addison Street which could be potentially affected by the project. This alternative has a similar mass, height and location on the lot as the proposed project evaluated elsewhere in this EIR (see Alternatives discussion for a more detailed description of the Stern/Surface Parking Alternative). An initial analysis was undertaken of the most heavily shaded conditions which occur on December 21. This analysis

[9] A building higher than 45 feet would require that these setbacks be increased by an amount equal to the amount the building exceeds 45 feet.

Public Safety Building

found that the proposed building had the potential to shade four residential properties during the morning. Partial shading was shown to occur on all four properties from 8 AM to 9 AM, with the shading impacts diminishing to three properties at 9 AM, with impacts further diminishing to the front yards of two homes by 11 AM, and almost no impact at 12:00 AM.

To further define the impact, the analysis was expanded to examine the impact on each of the affected homes. Based on the configuration of the buildings on the lot, the location of windows, and the preexisting shading from mature vegetation, this more detailed analysis found that the shading impact of the Public Safety Building was very slight. The most significant shading impacts would occur on two homes for front-facing (Addison) windows for one to two hours in the morning over the course of about two months. However, existing vegetation already shades the potentially affected windows so that there is very little, if any, net increase in shading from the building relative to existing conditions. The shading impacts of the proposed project are therefore found to be less than significant.

Impact A-PSB-2: Operation of the Public Safety Building has the potential to affect the use of the adjacent residential land uses on Addison Street. (LTS)

Activities associated with the operation of the proposed Public Safety Building have the potential to adversely affect the adjacent residential properties north of Addison Street. Such impacts could include the following:[10]

- vehicular traffic and congestion resulting from motorists seeking entrances to parking facilities and/or looking for parking on the street; and
- pedestrian activity resulting from the public's seeking entrance to and egress from the building, from possible gatherings and activities of employees during breaks and lunch.

Although it is likely that the proposed project would produce fewer of these types of impacts than the current buildings/uses, the perception of impacts by the adjacent neighbors may change. Therefore, the following set of mitigation measures is recommended:

Mitigation Measure A-PSB-2:

- Public pedestrian entrances shall be placed so that primary access is from Martin Luther King Jr. Way and away from Addison

[10] See also Section IV-G, *Traffic, Circulation, and Parking*, for the specific discussion of pedestrian and automobile impacts.

Public Safety Building

Street. Public entrances to the building shall also be made visually obvious (through building design and/or signage).

- Vehicular access and egress to the site from Addison Street and/or McKinley Avenue shall be restricted to non-public uses associated with the operation of the building, to emergency access, and to the access needs of the sally port.
- The City shall install signs directing auto traffic to public parking lots and discouraging the search for on-street parking in the vicinity of the site.
- A program to calm traffic on Addison Street, McKinley Avenue, and Allston Way west of Martin Luther King Jr. Way shall be developed in consultation with the adjacent neighborhood. (LTS)

A program developed to calm traffic may include the use of signs, diverters, and narrowing of intersections. The objective of this measure is to address existing and potential traffic impacts, to create an effective program that has the support of the adjacent neighborhood residents, and to minimize perceived impacts associated with operation of the Public Safety Building.

(3) Commercial Uses.

Impact A-PSB-3: Construction of the new Public Safety Building will require the removal of a non-residential building. (LTS)

The site proposed for the Public Safety Building includes the site for Berkeley Oakland Support Services, a non-profit providing support for the needy, located at the corner of Martin Luther King Jr. Way and Addison Street.

It is expected that appropriate findings can be made to allow the demolition of the subject building.

(4) Auto-Related Uses. Land use impacts to auto-related uses involve parking supply only. This set of issues is analyzed in Section 4G, *Transportation, Circulation and Parking.*

(5) Open Space. The new Public Safety Building would be oriented towards the Martin Luther King Jr. Civic Center Park, increasing the recognition of the park as an important open space. Strawberry Creek does not flow directly under the Public Safety Building site, though it is in the vicinity. Development of the new Public Safety Building would not adversely affect the Civic Center Park or the potential for development of Strawberry Creek as an open space amenity, therefore no significant impacts to open space are anticipated.

B. URBAN DESIGN

■ ■ ■

This section analyzes the proposed projects in terms of their relationship to established urban design characteristics of the Civic Center planning area and the City of Berkeley's established urban design policies. This section uses as its basis of analysis the issues the City has determined are important elements of urban design, as expressed through its public plans, policies, and ordinances. For an analysis of issues related to the potential demolition or removal of landmarked architecture or historically significant buildings, see Section 4C, *Historic Resources.*

1. Setting

Berkeley citizen's have long recognized the importance of their City's urban form, which the City administration has developed a strong program to preserve and enhance. A description of the urban design character of the Berkeley Civic Center area and of the documents that guide the City's urban design planning follows.

a. Urban Design Character of the Civic Center. The Berkeley Civic Center, an area stretching south from Addison Street to Bancroft Way and east from McKinley Avenue roughly to Shattuck Avenue, has a strong civic and institutional character owing to its concentration of buildings directly and indirectly related to the municipal, state, and federal government. Constructed over time from 1908 to 1950, these buildings reflect the architectural styles in vogue at the time of their design. They both share the architectural vocabulary of the academic Beaux-Arts classicism that dominated the design of american institutional buildings during the first half of the 20th century and depart from it as modernism superseded classicism in the post-world War II period. Buildings with a residential character, parking lots, and inappropriate contemporary intrusions, diminish the unity of the Civic Center buildings proper. Moreover, the architectural compatibility of these non-civic buildings derives in large part from their massing and scale rather than from their architectural style. Compatibility is strongest in the eastern part of the Civic Center area where the State Farm Building, the Martin Luther King Jr. Civic Center Building, the Downtown YMCA, United States Post Office, and the Community Theater Building share a more monumental scale than is

exhibited in the buildings to the west such as the Veteran's Memorial Building, the Federal Courts Building, the Fire Administration Building, the Hall of Justice, and the old Civic Center Annex Building.

The historic resources in the Civic Center planning area are described and mapped in Section 4C, *Historic Resources*, which follows this section.

b. Urban Form. The natural landform and the way humans have shaped it, the development patterns they have placed on it, and the types of places and structures they have built within this place all make up urban form.

(1) Landform. The Civic Center planning area lies along the now submerged Strawberry Creek, which runs from Strawberry Canyon to the San Francisco Bay. The creek, which runs above ground through the University of California campus, is one of its distinctive features. Once the creek leaves the campus at Oxford Street, it enters a system of underground culverts. Within the Civic Center planning area the creek is covered and thus lost as a potential amenity. Strawberry Creek runs under Martin Luther King Jr. Park and Old City Hall.

The Civic Center planning area slopes gently towards San Francisco Bay. Views up streets to the east often offer views of the Berkeley Hills. Views down streets to the west often offer views of the Bay, or the expectation that the Bay, the Golden Gate, or the ocean beyond might be glimpsed. The essentially level views north or south along streets generally end in the middle landscape, seldom terminating in a "view."

(2) Land Use Patterns. University and Shattuck avenues established Downtown Berkeley's street pattern and therefore much of its land use patterns. University Avenue was a horse-car route linking Berkeley's original commercial center at Ocean View near San Francisco Bay to the University of California campus. In 1878, the same year Berkeley was incorporated, a streetcar line was extended from Downtown Oakland to Downtown Berkeley along Shattuck Avenue. It ended at Berkeley and Shattuck squares (originally Stanford Place). Even then, Shattuck Avenue was Berkeley's main street. Downtown Berkeley has retained much of its importance as the commercial center of the City.

Perhaps more than most of the development Downtown, the development of the Civic Center was undertaken as a strong act of civic will. The land use pattern of Berkeley's Civic Center was cemented with the completion of Old City Hall in 1909. The City hoped to link this center of government with the commercial center on Shattuck Avenue. Although informal plans were made,

an official plan for this linkage does not appear to exist. During the construction of the [Old] City Hall, the City obtained options to purchase much of the land occupied by Martin Luther King Jr. Park and the Martin Luther King Jr. Civic Center building. Although the City did not then purchase the land, its intentions for the development of the block were well known. Consequently, the block was never fully developed by private interests.

However, in anticipation of the City's action on the block significant civic-related development did take place on the periphery of the central block. The Young Men's Christian Association (YMCA) building was built across Milvia Street in 1910. The United States Post Office was built diagonally to the block in 1914. The Veteran's Memorial Building was built facing the block on Center Street in 1928.

During the flurry of civic development in the late 1930s, the City worked with the Federal Land Bank to build the Federal Land Bank building (now the Martin Luther King Jr. Civic Center building). This effort was made partly to influence the acquisition of the remaining portions of the block. The Berkeley High School Science building at the corner of Martin Luther King Jr. and Allston ways was built across from the park block in 1939. Although construction of the Berkeley High School Community Theater began in 1940, the advent of World War II delayed its completion for ten years.

In 1940 the City began the process of purchasing the park block. The bond measure was approved by City voters in 1940, and by 1942, the City was celebrating its new public open space, the heart of its Civic Center. By that time, the basic form of the Civic Center was much as it is now. The park was designed by the Civic Center Committee, composed of Henry Gutterson (Chair), John Gregg, Baldwin Woods, Bernard Maybeck, and Julia Morgan. Berkeley residents were invited to contribute suggestions for the design.

The block on which the Public Safety Building is proposed was developed with public uses over time. It has remained the center of the City's civic functions to this day. Old City Hall was completed in 1909. City Hall Annex was built behind Old City Hall facing Allston Way in 1926. The Hall of Justice was built behind Old City Hall facing McKinley Avenue in 1939. The Fire Administration Building was built north of the Hall of Justice facing McKinley Avenue in 1955. The Alameda County Courthouse was built just north of Old City Hall facing Martin Luther King Jr. Way in 1959. While not civic uses, the McKinley House was moved from Atherton Street between Allston and Bancroft ways to its current location at 2111 McKinley in 1930.

(3) Block Pattern. The block pattern in the Civic Center planning area provides the basic framework for its urban form. Streets run every 600 feet east to west and every 300 feet north to south. The gentle slope of the more numerous east-west streets creates a tendency toward an east-west orientation and a heightened awareness of the bay and the Berkeley hills. This orientation also strengthens the connections between the Civic Center, the Downtown, and the University of California campus.

In contrast, the block on which the Public Safety Building is proposed creates a strong western edge to the Civic Center, especially because it is contrasted against the openness of Martin Luther King Jr. Park. This long block breaks the east to west grid by terminating Center Street. It is dominated by the presence of Old City Hall. It is nearly impossible to see through the block and its group of structures and the plantings. In addition, the tree-lined streets and houses of the neighborhoods that surround this block on the south, west, and north sides further enclose this block at street level.

(4) Development Pattern. Much of Downtown Berkeley is characterized by unbroken or nearly unbroken street walls composed of many narrow storefronts (15 to 30 feet). In the Civic Center planning area, particularly in and around Martin Luther King Jr. Park, buildings are larger, even monumental, and stand out individually. Examples include the Martin Luther King Jr. Civic Center building, the Berkeley High School buildings, Old City Hall, and the Veteran's Memorial Building. The Martin Luther King Jr. Civic Center building and Old City Hall are unusual because they are set well back from their property lines in landscaped open space.

(5) Building Heights. Building heights in the Civic Center planning area vary from several stories to many stories. However, similarity in building details—in particular the presence of a well-articulated cornice above the second or third stories on most buildings—give the buildings in the Civic Center a unified scale from the street.

(6) Gateways. The *Berkeley Downtown Plan* calls for the City to define major Downtown entry points and gateways, to identify development sites where "gateway buildings" could be located, and to identify design features that will make a stronger entrance statement. Although the Civic Center planning area does not extend far enough to the north or east to include potential sites for all Downtown gateways, possible sites for at least two such gateways exist in the area.

The *Downtown Plan* does not expressly call for the development of gateways to the Civic Center. Policy 1.64 of the *Berkeley Master Plan* establishes

Addison Street, Milvia Street, and Allston Way as the northern, eastern, and southern edges of the Civic Center, respectively. By implication, Martin Luther King Jr. Way is the logical western, "public," edge of the Civic Center. The proposed *Civic Center Urban Design Plan* proposes changes to three of four sites that could serve as logical gateways to the Civic Center.

(7) Corridors. The City has acknowledged a number of important corridors in the Civic Center planning area. The *Downtown Plan* and the *Downtown Berkeley Public Improvements Plan* both acknowledge the importance of Addison Street east of Milvia Street, and of the entire lengths of Center Street and Allston Way. While not specifically delineated as a corridor, these plans also note the importance of Strawberry Creek as an important corridor and urban design element within the Civic Center planning area.

(a) Addison Street. The *Downtown Plan* acknowledges the potential role of Addison Street east of Milvia Street as a street for arts and entertainment. The plan emphasizes the need for specific design treatment for Addison Street, and it calls for the development of a detailed streetscape design plan.[1] The *Downtown Berkeley Public Improvements Plan* proposes the development of an arts district centered on Addison Street between Milvia Street and Shattuck Avenue, which would continue as a traffic street but would have a plaza, bollards to separate pedestrian and automobile traffic, street trees, and special lighting. These planned improvements have been designed in two phases and Phase I will be installed by August 1, 1996.

(b) Center Street. The *Downtown Plan* discusses the importance of Center Street as the main east to west pedestrian linkage between the Civic Center, the Downtown, and the University of California campus. It does not propose specific design solutions for Center Street, but does propose development of design studies and a detailed design plan for the street. The *Downtown Berkeley Public Improvements Plan* proposes that Center Street and Allston Way be developed as a pedestrian couplet to link the Civic Center, the Downtown, and the University of California campus, and that they be developed with a similar character to include street trees and special lighting. The *Improvements Plan* also calls for the widening of the sidewalks on both sides of Center Street by four feet east of Milvia Street, and the development of diagonal parking between Milvia Street and Martin Luther King Jr. Way. Phase I of these planned improvements is under design; $700,000 has been funded for this phase.

[1] The city currently is constructing streetscape improvements for Addison Street, from Shattuck Avenue to Milvia Street.

(c) Allston Way. The *Downtown Plan* does not specifically evaluate the importance of Allston Way. However, the *Improvements Plan* proposes that Allston Way be developed with a character similar to Center Street, and describes these two streets as a pedestrian couplet. These improvements have not yet been made.

(8) Strawberry Creek. The *Berkeley Downtown Plan* calls for the incorporation of Strawberry Creek, either uncovered, above ground, or with another treatment, depending upon the results of further studies as to the feasibility of such an action. The *Berkeley Downtown Plan* also calls for uncovering Strawberry Creek where feasible to develop a water feature in the Downtown area. The *Improvements Plan* suggests that Strawberry Creek could be reclaimed or restored as part of Martin Luther King Jr. Park.

Within the Civic Center planning area, the only significant opportunities to uncover Strawberry Creek or to otherwise incorporate it into the Civic Center are along Center Street, within Martin Luther King Jr. Park, or in the area west of Old City Hall between Old City Hall and McKinley Avenue. No uncovering of Strawberry Creek has occurred in the Downtown area so far.

c. Guiding Documents. A large body of public documents describe and guide issues related to urban design in the Civic Center planning area. General provisions of each of these documents as they relate to urban design are described below. Specific provisions relevant to potential impacts are provided in the discussion of impacts and mitigation measures at the end of this section.

Portions of the Civic Center planning area lying within the *Berkeley Downtown Plan* planning area are guided by the policies of the *Berkeley Downtown Plan* and related documents, as well as by the *Berkeley Master Plan*. The portions of the Civic Center planning area lying outside the *Berkeley Downtown Plan* planning area—Old City Hall block, on which the Public Safety Building is proposed; and the Berkeley High School campus—are guided by the *Berkeley Master Plan*.

This Draft EIR assumes that it is the City of Berkeley's intention that the block on which the Public Safety Building is proposed be an integral part of both the Downtown and the Civic Center. This report assumes, therefore, that projects on this block should attempt to meet the spirit and provisions of the *Downtown Plan* and related plans as much as feasible. The following considers the conformance of these proposals with the *Downtown Plan* and related plans.

The following discussion addresses the public documents that guide urban design in Downtown Berkeley.

(1) Berkeley Master Plan. The *Berkeley Master Plan*, adopted in June 1977, is the current guide for development in the City of Berkeley. The City is in the process of developing a new general plan to update the *Berkeley Master Plan*, with the intention of incorporating the provisions of special plans and studies that have been prepared subsequent to the *Master Plan*, such as the *Berkeley Downtown Plan*. This process is not expected to be completed until mid 1997 or beyond.

The *Master Plan*'s guidance for urban design is contained in Land Use Policy Number 1.01 of the *Berkeley Master Plan*, which directs the City to "Identify, restore, and preserve historic buildings; protect historic structures through careful design and location of adjacent new structures, or if appropriate, by relocation to another site; alleviate potential economic hardships to tenants and owners."

(2) Berkeley Downtown Plan. The *Berkeley Downtown Plan*, adopted by the City Council on November 27, 1990, builds upon the *Berkeley Master Plan*, and provides additional, more specific guidance than the *Master Plan* for development Downtown as it relates to urban design. The provisions of the *Berkeley Downtown Plan* related to urban design also are implemented by the *Downtown Berkeley Public Improvements Plan* and the *Downtown Berkeley Design Guidelines*, both of which are described below. The *Downtown Plan* directs the City to "Express and enhance Berkeley's unique social and cultural character in the Downtown. (Goal 1, Page 4) The plan "encourages adaptive reuse of existing buildings, to encourage economic revitalization while preserving Downtown's early 20th Century historic character." (Goal 1, Historic Preservation Element, Page 4)

Historic Preservation and Urban Design Objective 1: Provide continuity between the old and the new in the built environment. Retain the scale and the unique character of the Downtown. (Page 21)

Policy 1.1 Retain the older, historically valuable buildings in and around the Downtown. Encourage adaptive re-use of older buildings by promoting rehabilitation and re-use of existing structures that contribute to the overall design character of Downtown. (Page 22)

Policy 1.2 Maintain the existing scale of Downtown. New construction should fit into the context of the existing built

environment and complement Downtown's historic character. Encourage infill development that is compatible with existing uses and improves the pedestrian environment and the streetscape. Permit taller buildings only if they are in scale with other structures in the area. (Page 22)

Historic Preservation and Urban Design Objective 2: Strengthen the Downtown's identity, image and sense of place. (Page 22)

Policy 2.2 Recognize that different parts of the Downtown have special character, and develop programs to strengthen and reinforce it. Develop land use, density, special design features, and building guidelines. (Page 23)

Policy 2.4 Create a visually cohesive district which retains its early 20th Century characteristics. (Page 23)

Historic Preservation and Urban Design Objective 3: Improve the visual and environmental quality of the Downtown, with an emphasis on the pedestrian environment. (Page 23)

Policy 3.1 Test proposed new developments as to their potential impact on views and solar access to and from important public places. (Page 24)

Policy 3.2 Develop a detailed streetscape plan. Create plaza and other urban spaces as identified in that plan, to enhance the pedestrian environment and increase the number of people who will use Downtown. Enhance sidewalks and streetscapes to reflect the scale and early 20th Century historic quality of Downtown architecture. (Page 24)

Policy 3.3 As part of private and public development and renovation projects, attempt to maximize green spaces, natural surfaces, plants and streetscaping in the development plans. (Page 24)

Historic Preservation and Urban Design Objective 4: Enhance and improve the physical connection between Downtown and the surrounding neighborhoods and institutions, such as the University of California. (Page 25)

Policy 4.2 Protect adjacent residential neighborhoods with guidelines that scale down development at the periphery of Downtown (i.e., a transitional zone). (Page 25)

Policy 4.4 Activity and new development in the Civic Center should be oriented towards the Civic Center park and away from the residential neighborhoods. Expansions or additions to buildings should keep within the character of the Civic Center and maintain the existing setback of Old City Hall. The height should not exceed the Old City Hall roofline. (Page 25)

The *Downtown Plan* also sets out specific urban design criteria and selected ordinance amendments. These provisions have been incorporated into the *Downtown Berkeley Design Guidelines*, and are described below.

Entry Corridors: Define major Downtown entry points and key intersections through the use of design features and building guidelines. New development along the Downtown entry corridors and streetscapes should include design features to help create a sense of entrance into Downtown. Identify development sites where "gateway buildings" could be located and identify design features that will make a stronger entrance statement. These elements could include such items as accentuating building corners, dramatic facade materials, plane changes to add depth to facades or overhangs above the right-of-way, clock towers, different roof treatments and so forth. (Page 34)

Center Street Design Plan: Implement a design plan for Center Street that will unite the University and Downtown and address both land use and aesthetics and aim at creating a conceptual and functional linkage between the University of California campus and Downtown. This design plan may incorporate Strawberry Creek, either uncovered, above ground, or with another treatment, depending upon the results of the further studies identified in the Environmental Quality, Open Space and Recreation Element of the *Downtown Plan*. (Pages 34 and 35)

Open Space and Recreation Objective 5: Develop the Downtown as a pleasant place for pedestrians. (Page 64)

Policy 5.2 Provide a variety of outdoor spaces for pedestrians, particularly gathering spaces. Insure that these outdoor spaces are comfortable by emphasizing sunlight access, views, and sun and/or wind protection where appropriate. (Page 65)

Policy 5.3 Enhance the existing open space in Downtown, including the Civic Center Park area and the BART Plaza. (Page 65)

A project's consistency with the *Berkeley Downtown Plan* currently is ensured through development review that is part of the Use Permit process. Not all provisions of the *Berkeley Downtown Plan* are incorporated into the *City of Berkeley Zoning Ordinance* or other implementing ordinances.

(3) Downtown Berkeley Public Improvements Plan. The *Downtown Berkeley Public Improvements Plan*, completed June 1994, is the City's guide for funding and establishing the additional planning and design needed to make public improvements Downtown. The *Improvements Plan* makes the following recommendations as they relate to urban design (see Figure 12).

Center Street/Allston Way Couplet. The *Improvements Plan* proposes the development of Center Street and Allston Way—the two east to west streets that bracket Martin Luther King Jr. Park—as a strong pedestrian corridor link between the Civic Center, the Downtown, and the University of California campus. Elements include the following:

- A consistent development character for the two streets.
- Establishment of a line of trees along the outside edge of these streets, broken to accommodate special lighting, or in places where buildings hold the line that otherwise would be created by these lines of trees.
- Establishment of lighting along the inside edge of streets, broken to accommodate special lighting in key places, as on both sides of Milvia Street in front of the Martin Luther King Jr. Civic Center, and in front of the Veteran's Memorial Building and Old City Hall.
- Widening of sidewalks by four feet along both sides of Center Street east of Milvia Street.
- Development of diagonal parking along Center Street between Milvia Street and Martin Luther King Jr. Way.
- Creation of an civic entry to the Martin Luther King Jr. Civic Center Building from the park, Center Street, and Allston Way.

Downtown Arts District. Downtown Arts District on Addison Street between Shattuck Avenue and Milvia Street. The district is intended to:

- Reflect the area's role as the locus of an arts district.
- Provide a plaza, street trees, drop-off, bollards, markers, and special lighting.

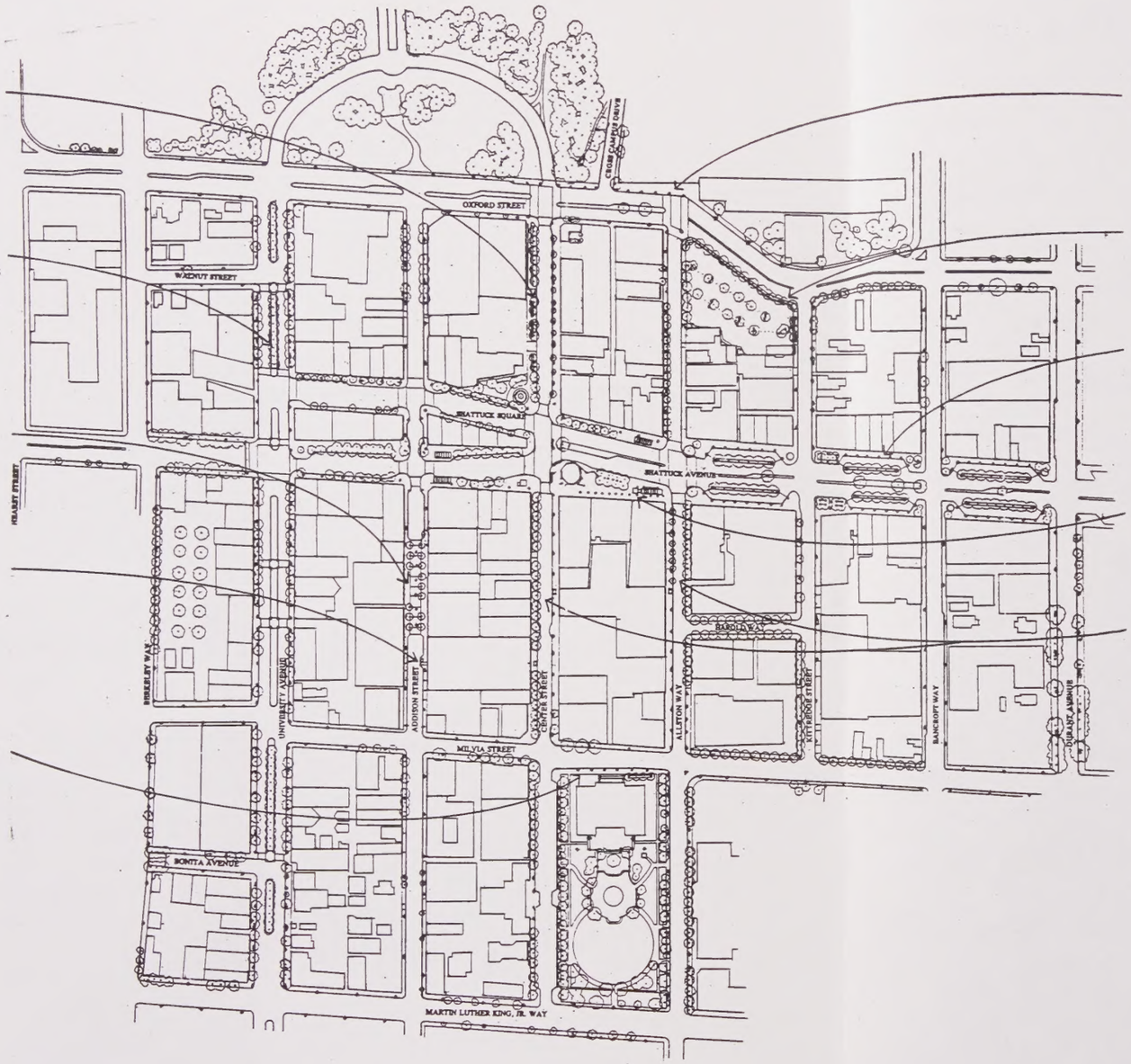
Center Street Water Element. Center Street will have an artful water element to commemorate Strawberry Creek.

University Avenue. University Avenue will be given more visual importance as an entry to the downtown by locating a series of makers in the median that designate pedestrian crossings, and by planting trees in the medians between Oxford and Shattuck and Milvia and Martin Luther King, Jr. Way.

Downtown Arts District. The Downtown Arts District design will transform the block of Addison between Shattuck and Milvia into a special place in the downtown.

Parking Structures and Lots. Parking structures and lots will be integrated in the image of the city and made to reflect their vital function as a source of pedestrian paths.

Special Lighting. Lighting will be intensified at key locations in the Center/Allston couplet with double fixture heads. These special places include: Campus entry, BART Plaza, Post Office, City Hall, and the Veteran's Memorial building.



Entry Link. Streetscape improvements will make a more effective transit-related portal between campus and downtown.

Oxford Street Crescent. Streetscape improvements and landscaping that will give shape to the curve will be coupled with landscape improvements to the parking lot.

Pedestrian/Parking Pocket. These blocks of Shattuck will be designed to define a pedestrian-oriented space, with lighting, trees, and special paving.

BART Plaza. The BART Plaza is treated with new lighting, a special design will be for the BART Drum, information markers, landscaping, and seating areas.

Center/Allston Trees and Lighting. Trees will line the outside edge of Center/Allston couplet and pedestrian lighting will line the inside edge. This pattern is broken in certain places to accommodate special lighting, or when existing buildings hold the line created by the trees (as on Allston, east of Shattuck).

N

Not to Scale

FIGURE 12
DOWNTOWN BERKELEY
PUBLIC IMPROVEMENTS PLAN

New and existing street trees

New pedestrian-scale lighting

BERKELEY CIVIC CENTER
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

480-005

Parking Structures and Lots. Integration of parking structures and parking lots into the image of the City, reflective of their function in the pedestrian path system.

(4) Design Review Ordinance. The City Council adopted the *Design Review Ordinance* in 1986, and established the Design Review Committee to advise the Zoning Adjustments Board on design-related issues of projects. The *Design Review Ordinance* requires design approval, prior to construction, of commercial and industrial buildings, storefronts, signs and awnings.

The elements of the *Design Review Ordinance* appropriate to urban design in the Civic Center planning area are set out in the *Downtown Berkeley Design Guidelines*, which were made part of the *Design Review Ordinance* by amendment. The *Downtown Berkeley Design Guidelines* are described below.

The *Design Review Ordinance* and the *Downtown Berkeley Design Guidelines* are administered by City staff or the Design Review Committee, which is a subcommittee of the Zoning Adjustments Board. The Committee or staff reviews applications for design review, and can either approve, modify, or deny applications. Design review involving landmarks and structures of merit is undertaken by the Landmarks Preservation Commission (LPC) instead of the Design Review Committee, in accord with the Landmarks Preservation Ordinance.

Provisions of the *Design Review Ordinance* apply to all projects in all non-residential districts for which a building permit, a Use Permit, or a Variance is required.

(5) Downtown Berkeley Design Guidelines. The *Downtown Berkeley Design Guidelines*, adopted by the Planning Commission on October 26, 1994, as amendments to the *Design Review Guidelines*, implement the objectives and policies of the Historic Preservation and Urban Design Element of the *Berkeley Downtown Plan*. In addition to documenting the landmark and significant buildings in the Downtown, the *Downtown Berkeley Design Guidelines* uses the predominant design elements of these landmark and significant buildings to establish design guidelines for renovation and new construction. These include guidelines for the following:

- building facades;
- roof forms;
- storefronts;
- building materials;
- details and ornamentation;

- color;
- lighting, security, and equipment;
- special historic features;
- signs and graphics;
- site design;
- height;
- open spaces; and
- special sites and buildings, including civic buildings.

(6) Landmarks Preservation Ordinance. The Berkeley City Council adopted the *Landmarks Preservation Ordinance*[2] in 1974, in order to protect structures, sites and areas that are considered City landmarks. Through this ordinance, the LPC, a nine-member volunteer commission, has been delegated authority by the City Council to designate buildings, sites, and districts as City Landmarks or as Structures of Merit.

In addition to establishing and maintaining a list designating landmarks, the LPC reviews any proposed construction, alteration, or demolition to landmark buildings and structures of merit for which a permit is required, in order to ensure that changes conform to the purposes and standards of the Landmarks Preservation Ordinance. For publicly owned landmarks or structures of merit, the Commission also reviews proposed changes in major interior architectural features.[3]

The LPC also advises the Design Review Committee regarding the appropriateness of design changes to all non-residential buildings on the state historic resources inventory list and advises the Zoning Adjustments Board about demolitions of all non-residential buildings over 40 years old. The LPC provides advice on the impact a proposed project may have on an adjacent or nearby landmark building.

(7) Civic Center Urban Design Plan. The proposed Civic Center Urban Design Plan is one of the two "projects" under consideration in this EIR.

As described in the proposed plan, the document "is a design plan for the area that examines how specific improvements and projects may be integrated into the existing urban fabric to reinforce and improve the aesthetic, cultural and

[2] Chapter 3.24, *Berkeley Municipal Code*.

[3] Throughout this report and in the guiding documents to which this report depends, the term "significant buildings" is used in lieu of the term "structures of merit."

environmental quality of the Civic Center area." The plan emphasizes the area's historic character and urban design assets, and uses the opportunities presented by several new public investments to improve the design of the Civic Center. The guidelines are not zoning requirements or development limits, but rather, aim to direct creative design efforts that will result in physical improvements and building designs that support the community's vision for the area.

2. Impacts and Mitigation Measures

The proposed plan and Public Safety Building would have a significant impact on urban design if they would:

- Have a substantial, demonstrable negative aesthetic effect on existing defining features or on the existing building and streetscape environment.
- Not be designed to an appropriate scale compatible with surrounding development and consistent with development patterns.
- Fail to meet urban design standards or guidelines set forth by the City of Berkeley.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan.

Impact B-CC-1: The seismic strengthening and expansion of the Martin Luther King Jr. Civic Center Building has the potential to significantly change the design character of the eastern edge of the Civic Center and the Martin Luther King Jr. Park. (S)

See Section 4C, *Historic Resources*, for a description of the impacts of the proposed seismic strengthening and expansion of the Martin Luther King Jr. Civic Center Building on the historic character of the building itself.

The Martin Luther King Jr. Civic Center Building occupies a position at the eastern edge of the Civic Center that equals that of Old City Hall, which dominates the Civic Center on the west. The building is also a major contributor to the design character of the historic buildings that surround Martin Luther King Jr. Park, and of the park itself. It is an important part of this context, which includes the Veteran's Memorial Building, the Community Theater and Science and Shop buildings on the Berkeley High campus, and Old City Hall.

As the only building that shares the site of the Martin Luther King Jr. Park, the Martin Luther King Jr. Civic Center Building occupies an important

location relative to the Park. It appears, however, that much of the way the building and the park were intended to address one another has been lost over time, especially with the development of the fenced surface parking that now lies between the building and the park.

There is the potential for the expansion and seismic strengthening of the Martin Luther King Jr. Civic Center Building to adversely affect the role the building now plays within the park. On the other hand, the expansion and seismic strengthening of the building also has the potential to strengthen this role and to improve the interface between the building and the park and to establish more clearly the interrelationship of the building, the park, and Old City Hall.

The City has a clear set of design guidelines that, if adhered to, can be expected to produce seismic improvements and an expansion of the Martin Luther King Jr. Civic Center Building that will help to retain the building's relationship to the important civic buildings that surround the Martin Luther King Jr. Park, to the Park itself, and to the Civic Center as a whole.

> Mitigation Measure B-CC-1: All new development in the Civic Center planning area shall be required to meet the applicable guidelines of the *Downtown Berkeley Design Guidelines* and requirements of the *Landmarks Preservation Ordinance.* (LTS)

Impact B-CC-2: The consolidation of parcels for the new County Courthouse Building will alter existing development patterns on the site. (LTS)

Development of the County Courthouse on the site proposed in the *Civic Center Urban Design Plan* will require the consolidation of four or more parcels. The *Downtown Plan* calls for maintaining the scale and context of the existing built environment. It notes that an important component of scale and context is lot and building size, and describes the virtue of the small, unconsolidated lots and narrow, frequent store fronts (15- to 30-foot intervals) found in the Downtown. Policy 2.5, Core Area Subpolicy D of the *Downtown Plan* directs the City to "Encourage the development of small parcels within the core as opposed to their assembly into larger parcels." (Page 149)

However, the development pattern in the Civic Center differs markedly from the development pattern that the *Downtown Plan* describes for other parts of the Downtown. In the Civic Center planning area, particularly around Martin Luther King Jr. Park, buildings are somewhat larger than elsewhere, even monumental, and they tend to stand out as individuals. Examples include the Martin Luther King Jr. Civic Center building, the Community Theater and

Science and Shop buildings on Berkeley High School campus, Old City Hall, and the Veteran's Memorial Building. The Martin Luther King Jr. Civic Center building and Old City Hall are even more unusual in the Downtown in that they are individual buildings set well back from their property lines, and surrounded by substantial open space and landscape plantings.

The *Downtown Plan* does not specifically account for the difference between the urban design character of the Civic Center and the rest of Downtown. Historic Preservation and Urban Design Policy Number 2.1 of the *Downtown Plan*, however, directs the City to recognize the special character of the different parts of the Downtown and to develop programs to strengthen and reinforce it.

The development of a major civic building on the site proposed for the new Alameda County Municipal Courthouse at the corner of Martin Luther King Jr. Way and Center Street fronting Martin Luther King Jr. Park has the potential to provide a strong design element to this important portion of the Civic Center. Development of the Alameda County Courthouse at this location has the potential to result in a civic building in scale with the other civic buildings fronting the Park, to strengthen the civic presence at this corner, and to this important civic function at the terminus to the Center Street corridor.

The consolidation of lots for the new County Courthouse, while a change from the current development pattern, is in character with other civic structures surrounding Martin Luther King Jr. Park. For this reason, no mitigation is proposed for this less than significant impact.

Public Safety Building

b. Public Safety Building. The proposed site of the Public Safety Building lies to the north of Old City Hall, and is separated from Old City Hall by the Alameda County Municipal Courthouse. The design of the proposed Public Safety Building is on-going but the City Council has recently adopted a conceptual design described in Alternative 1 of this EIR.

With the demolition of the existing County Courthouse, the Hall of Justice, and the Fire Administration Building, there would be an increased potential for a stronger design unity and integrity between Old City Hall and the Public Safety Building. Removal of these three buildings also would remove three structures whose designs do not now relate to the strong design character of Old City Hall.

It should be noted that the City has no control over the County's replacement of the Courthouse, nor in its demolition if it is replaced. The issue of the

continued existence of Courthouse has design implications for the Public Safety Building.

The demolition of the three buildings on the block heightens the importance of those physical elements that will replace the demolished structures. These spaces will be filled with a combination of open space, pedestrian circulation ways and vehicular parking facilities.

In order to avoid a conflict with the *CCUDP*'s urban design objectives, the City should commit to the demolition of the Hall of Justice and the Fire Administration Building once their function has been replaced. The City should also coordinate with the County to ensure that the existing Alameda County Municipal Courthouse is removed once its functions have relocated to the new Courthouse.

Another element of the proposed project with potentially significant urban design implications is the 160-foot communications antenna located in the parking lot area of the site, adjacent to the northern edge of the existing McKinley House property. In preliminary computerized simulations of this structure, it appears to be comprised of three vertical elements (known as a triangulated truss) that nearly converge at the apex. The simulations do not indicate the presence of any dishes or other horizontal antenna components. However, it is expected that these elements (including reception dishes that reach six to eight feet in diameter) would be relocated from the two existing communication towers.[4]

In the context of this block and the proximity of Old City Hall, the addition of such a visible structure might represent a significant adverse impact in urban design terms. However, the fact that the proposed antenna replaces two existing towers (shifting the dishes and other apparatus to the new structure) leads to the conclusion that the net change over the existing condition would not be significantly adverse. The net effect is not only relatively small, but in some ways (e.g., consolidation of the two towers into one and a more sensitive design) it could represent an improvement.

[4] Personal communication with Peter Hourihan, EKONA Architecture + Planning. April 1997.

C: HISTORIC RESOURCES

■ ■ ■

This section analyzes the proposed projects in terms of their potential impacts on the historic resources in the Civic Center planning area. It focuses on issues related to potential demolition or alteration of landmarked architecture and historically significant structures and lack of sensitivity in the planning of nearby structures. For an analysis of visual and design issues as they relate to landmarks and significant buildings, see Section 4B: *Urban Design*. The analysis in this section uses as its basis the issues the City has determined are important elements in terms of historic resources, as expressed through its public plans, policies, and ordinances.

1. Setting

a. Character of Historic Resources in the Civic Center. The concentration of historic resources found in the Berkeley Civic Center area is very rare in California. As described throughout this section, the Civic Center proper includes nearly two dozen listed structures. This wealth of historic resources nearly doubles if one looks beyond the Civic Center throughout other areas of the larger downtown and adjacent edge of the University of California campus. The area experienced some redevelopment in the 1970s and 1980s, but most of this activity was confined to the demolition and addition of individual buildings, rather than wholesale block-at-a-time redevelopment prevalent in other California cities with such resources.

Compared to historic resources in other parts of Berkeley, the Civic Center's buildings are—not surprisingly—almost all institutional and civic buildings related to municipal, state and federal government activities. Historic buildings in the Civic Center, built throughout the period of 1908 to 1950, reflect the architectural styles that predominated at the times of their design. They share elements of the Beaux Arts classicism that was prevalent throughout the first half of the 20th century and depart from it as modernism superseded classicism in the post-World War II period. In many ways, it is the massing and grand scale of these buildings that creates a stronger visual bond than the compatibility of their architectural styles. Intrusions on the unity of the Civic Center's historic architecture take the form of highly visible parking lots, residential buildings and a handful of contemporary structures.

b. Background on Preservation of Historic Resources. Several historic resource and significant building lists apply within the City of Berkeley, including those prepared by federal, state, and local authorities. Each set of recognized historic resources is subject to a somewhat different set of regulations on the basis of the review and/or permit authority granted to its protector organization. Some lists of resources overlap or are inconsistent. In many cases, the compiled lists and underlying research are recognized as being incomplete and subject to the need for further investigation and evaluation. For these reasons, a comprehensive look at the listings and their applicable protections is provided below. The historic properties within the Civic Center planning area are summarized in Table 4, which is keyed to Figure 13. The official lists are discussed in greater detail below; specific discussion and photographs of the properties which are on the City's Landmarks listing are provided.

The remainder of this Setting section describes historic resources in the Civic Center as recognized at the federal, state and local levels.

c. National Register of Historic Places. The *National Register of Historic Places* has specific criteria for evaluating the eligibility of historic resources. The criteria apply to the quality of significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that (a) are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or (d) that have yielded or may be likely to yield information important in history or prehistory.[1]

Four buildings within the Civic Center planning area are on the National Register. These are the Old City Hall, the United States Post Office, the Downtown YMCA, and the Berkeley Public Library. These resources are further detailed in Table 4.

[1] Code of Federal Regulations, Title 36, Part 60.

1. Old City Hall (BUSD)
2. Federal Land Bank (Martin Luther King Jr. Civic Center)
3. Armstrong University
4. United Artists Theatre
5. Morse Block, Donogh Arms Building, Pasand Hotel
6. Framat Lodge
7. National Guard Armory
8. Stadium Garage
9. Armory Hall
10. Veteran's Memorial Building
11. State Farm Building
12. Old City Hall Annex (BUSD)
13. Berkeley High School: Science Building
14. Berkeley High School: Shop Building
15. Berkeley High School: Community Theatre
16. United States Post Office
17. YMCA
18. Elks Club
19. Shattuck Hotel
20. Berkeley Public Library

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 13
HISTORIC AND ARCHITECTURAL RESOURCES

Table 4
HISTORIC RESOURCES IN THE CIVIC CENTER PLANNING AREA

Map #	Address	Building Name	Architect	Date	City Designation[a]	California SHPO List[b]	California and National Register[b]
Martin Luther King Jr. Way							
1	2134 Martin Luther King Jr.	Old City Hall (BUSD)	Bakewell and Brown	1909	L	1S	✔
Milvia Street							
2	2180 Milvia	Farm Credit Admin. Bldg. (Martin Luther King Jr. Civic Center Building)	James W. Placheck	1938	L	3S	
Harold Way							
3	2222 Harold Way	Armstrong University	Walter H. Ratcliff, Jr.	1923	L		
Shattuck Avenue							
4	2274 Shattuck	United Artists Theater	Balch and Stanberry	1932	S	3S	
5	2276-2286 Shattuck 2037-2043 Bancroft Way	Morse Block, Donough Arms Building, Pasand Hotel	Dickey and Reed	1906	L	3S	
Addison Street							
6	1906 Addison	Framat Lodge	S.G. Jackson	1926	L		
7	1950 Addison	National Guard Armory	unknown	1910	S	3S	
8	2020-6 Addison	Stadium Garage	B. Reed Hardman	1928	S	3S	
9	2070 Addison	Armory Hall	unknown	1899	S	3S	
Center Street							
10	1931 Center	Veteran's Memorial Building	Henry H. Meyers	1928	L	2S2	
11	1947 Center	State Farm Insurance Building	James W. Plachek	1946	S	3S	
Allston Way							
12	1835 Allston	Old City Hall Annex (BUSD)	James W. Plachek	1926	L		
13	1922 Allston	Berkeley High School: Science Building	William Corlett Henry Gutterson	1940	L		

Table 4 *continued*

Map #	Address	Building Name	Architect	Date	City Designation[a]	California SHPO List[b]	California and National Register[b]
14	1922 Allston	Berkeley High School: Shop Building	William Corlett Henry Gutterson	1939	L		
15	1950 Allston	Berkeley High School: Community Theatre	William Corlett Henry Gutterson	1950	L		
16	2000 Allston	United States Post Office	Oscar Wenderoth	1915	L	1S	✔
17	2001 Allston	Young Men's Christian Association (Downtown YMCA)	Benjamin McDougall	1910	L		✔
18	2018 Allston	Elks Club	Walter H. Ratcliff, Jr.	1913	L	3S	
19	2068-2070 Allston Way 2060-2099 Kittredge Street	Shattuck Hotel, Hink's	Benjamin McDougall	1909-1913	L	3S	
Kittredge Street							
20	2090 Kittredge	Berkeley Public Library	James W. Plachek	1931	L	1S	✔

City Designations:
L = Landmark Building - officially designated by City.
S = Architecturally Significant Building; this includes buildings that are listed on either the Berkeley Architectural Heritage Association *Inventory of Significant Buildings* or the *Downtown Berkeley Design Guidelines*.

State Designations:
1S = Separately listed in the National Register as a local landmark.
2S2 = Determined eligible for separate listing on the National Register as a local landmark through a consensus determination by a federal agency and the State Historic Preservation Officer.
3S = Appears eligible for separate listing in the National Register.

[a] City of Berkeley. *Designated Landmarks by Designation Date*. February 1995.
[b] *Directory of Properties in the Historic Property File for Alameda County*. Record of the California Office of Historic Preservation. Provided by Northwest Information Center, Sonoma State University. March 20, 1996.

d. State Office of Historic Preservation. The *California Register of Historical Resources*, enacted in 1992, is an authoritative guide to be used to identify the state's historical resources. The California Register program encourages public recognition of resources of architectural, historical, archeological and cultural significance; identifies historical resources for state and local planning purposes; and defines threshold eligibility for state historic preservation grant funding.

By law, properties may be added to the California Register in two ways. At this time, the California Register consists of resources that are listed automatically by status through the California Register enabling legislation (AB 2881). The California Register includes properties listed in, or formally determined eligible for, the National Register, and selected California Registered Historical Landmarks. Therefore, in the Civic Center planning area, the properties on the California Register include those mentioned above in the discussion of the National Register.

Formal Guidelines and Procedures for the direct nomination of properties must be adopted by the State Historical Resources Commission before other resources can be added.

As an informational resource, the State Historic Preservation Office (SHPO) also maintains the *Directory of Properties in the Historic Property Data File*. This inventory is considered the most comprehensive list of historic properties for the State of California currently in existence. For historic resources in the City of Berkeley, this list is largely based on the *State Historic Resources Inventory,* which was prepared by the Berkeley Architectural Heritage Association (BAHA) from 1977 to 1979. (More information on BAHA is provided in Section e-4 below.) Properties on this list are not protected or regulated, but merely designated for purposes of recognition.

This state survey produced a representative rather than a comprehensive inventory. The scope and reliability of the data within the listing varies depending upon the availability of information. As shown on Table 4, there are many properties which have been designated as City Landmarks or "Architecturally Significant" buildings that are not within the *Historic Property Data File* maintained by SHPO. The information contained in the SHPO directory indicates whether a property is listed in the National Register, or is determined eligible for listing in the National Register or through another federal agency.

In addition, the State Historic Preservation Office must be consulted on any federally-assisted project which involves any building 50 years of age or older.

e. City Designations and Regulations. Berkeley citizens have long recognized the importance of the City's historic resources and their role in the City's urban form. The City has developed a strong program to preserve and enhance them. The listings, ordinances, and planning documents that guide historic resource preservation in Berkeley are described next, with emphasis on the Civic Center. Additional information on urban design considerations, and regulations pertaining to neighborhood preservation are contained in this chapter in Section A, *Land Use and Public Policy*, and Section B, *Urban Design*.

(1) Berkeley Master Plan. The *Berkeley Master Plan*, adopted in June 1977,[2] is the current guide for development in the City of Berkeley. The City is in the process of developing a new general plan to update the *Berkeley Master Plan*, with the intention of incorporating the provisions of special plans and studies such as the *Berkeley Downtown Plan*. This process is not expected to be completed until mid- to late-1997. Until the general plan is completed and adopted, however, the *Berkeley Master Plan*—and the *Berkeley Downtown Plan* and related documents described below—are the primary public documents guiding urban design issues within the Civic Center study area.

Land Use Policy Number 1.01 of the *Berkeley Master Plan* directs the City to "Identify, restore, and preserve historic buildings; protect historic structures through careful design and location of adjacent new structures, or if appropriate, by relocation to another site; alleviate potential economic hardships to tenants and owners."

(2) Berkeley Downtown Plan. The *Berkeley Downtown Plan*,[3] adopted by the City Council on November 27, 1990, builds upon the *Berkeley Master Plan*, and provides specific guidance for development downtown and the preservation of historic resources.

Goal 1 of the *Berkeley Downtown Plan* calls for the City to "Express and enhance Berkeley's unique social and cultural character in the downtown." Regarding historic preservation under this goal, the "plan encourages adaptive reuse of existing buildings, to encourage economic revitalization while preserving Downtown's early 20th Century historic character."

Historic Preservation and Urban Design Policy 1.1 states: "Retain the older, historically valuable buildings in and around the Downtown. Encourage

[2] City of Berkeley. *City of Berkeley Master Plan.* 1977.

[3] City of Berkeley. *City of Berkeley Downtown Plan.* 1990.

adaptive re-use of older buildings by promoting rehabilitation and reuse of existing structures that contribute to the overall design character of Downtown" (*Berkeley Downtown Plan*, page 22).

The *Berkeley Downtown Plan* establishes specific criteria for Downtown design review including the recommendation to "Prohibit the demolition of any historic structure documented in the Berkeley Architectural Heritage Association Historic Survey of Downtown, and require Landmark Preservation Commission review of demolitions of buildings greater than 40 years old, as specified in the Landmarks Preservation Ordinance" (*Berkeley Downtown Plan*, page 30).

(3) Downtown Berkeley Design Guidelines. The *Downtown Berkeley Design Guidelines*, adopted by the Planning Commission as amendments to the *Design Review Guidelines* on October 26, 1994, implement the objectives and policies of the historic preservation and urban design element of the *Berkeley Downtown Plan*. The *Downtown Berkeley Design Guidelines* document landmark and significant buildings in the Downtown, and use the predominant design elements of these landmark and significant buildings to establish design elements for new buildings.

(4) Berkeley Architectural Heritage Association. The Berkeley Architectural Heritage Association (BAHA) is a community-based, non-profit membership organization dedicated to educating the public about Berkeley's architectural heritage and advocacy for its preservation. BAHA prepared an inventory of the significant historic resources in Berkeley for the SHPO from 1977 to 1979.[4] This analysis is the basis for subsequent historic resource protection enacted by the City of Berkeley. The BAHA inventory serves as the Landmarks Preservation Commission's de facto list of important historic resources, although the Commission need not and does not draw exclusively from this inventory in its determination of future landmark properties.[5]

BAHA also amended the inventory in 1987. At that time the Framat Lodge was added to the list as a potentially significant structure that could be considered for City listing. This was based on the visual character of the building and does not reflect a formal analysis based on the criteria of the City or National Register.

[4] Berkeley Architectural Heritage Association. *State Historic Resources Inventory.* 1977 to 1979.

[5] Personal communication with Dan Marks, City of Berkeley. April 1996.

(5) Landmarks Preservation Ordinance. The Berkeley City Council adopted the *Landmarks Preservation Ordinance*[6] in 1974, in order to protect structures, sites and areas that are considered City Landmarks. Through this ordinance, the Landmarks Preservation Commission (LPC), a nine-member volunteer commission, has been delegated authority by the City Council to designate buildings, sites, and districts as City Landmarks or as Structures of Merit.

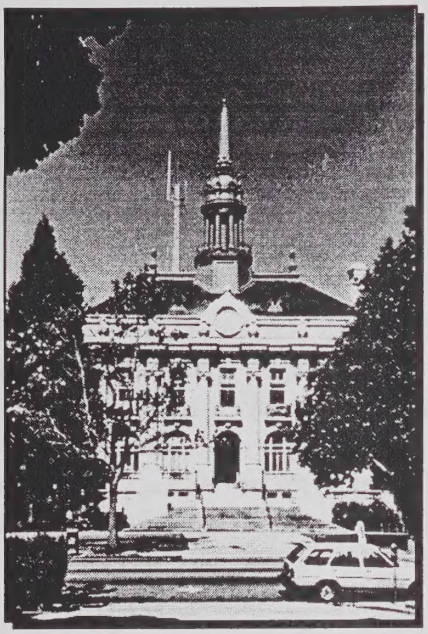
In addition to establishing and maintaining a list designating landmarks, the LPC reviews any proposed construction, alteration, or demolition to landmark buildings and structures of merit for which a permit is required, in order to ensure that changes conform to the purposes and standards of the Landmarks Preservation Ordinance. For publicly owned City Landmarks or Structures of Merit, the LPC also reviews proposed changes in major interior architectural features.

The LPC also advises the Design Review Committee regarding the appropriateness of design changes to all non-residential buildings on the state historic resources inventory list and advises the Zoning Adjustments Board about demolitions of all non-residential buildings over 40 years old. The LPC provides advice on the impact a proposed project may have on an adjacent or nearby landmark building.

A property may be proposed for designation as a landmark or structure of merit by the LPC, property owners, the City Council, or the Planning Commission or the Civic Arts Commission, or by petition of 50 or more Berkeley residents. The LPC is required to hold a public hearing within 70 days of the filing of such an application. The LPC has the authority to designate a structure or site as a Landmark or a Structure of Merit and may designate an Historic District, but designation of an historic district must be supported by the signatures of at least 50 percent of the property owners within the proposed district.

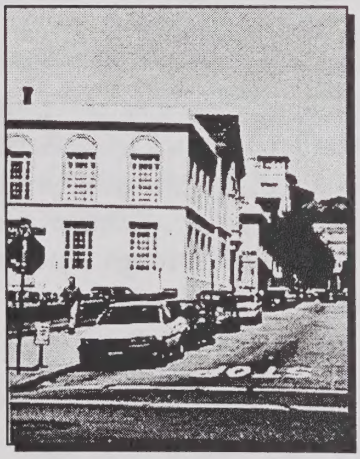
f. Photographs and Descriptions of Civic Center Landmarks. A select set of existing structures and sites that are on the City of Berkeley's Landmarks list and of greatest sensitivity in light of the proposed projects are illustrated with photographs and briefly described below. Some of these properties are also designated valuable historic resources through state and federal listings, as summarized above in the previous Table 4.

[6] Chapter 3.24, *Berkeley Municipal Code*.



***Old City Hall** (Berkeley Unified School District Administration Building), 2134 Martin Luther King Jr. Way.* The former City Hall was designed by Bakewell and Brown in the Beaux-Artsian Neo-Classic style. When the building was completed in 1909, it was viewed as the first increment of a civic center that would stretch to Shattuck Avenue. A 1914 plan created by Hobart and Cheney could not be implemented because the land proposed for it was not publicly owned. The Civic Center as it stands today was not completed until 1941. Old City Hall served as the seat of municipal government from 1909 until 1977. The building is now the Berkeley Unified School District's main administration building.

***Martin Luther King Jr. Civic Center Building** (former Farm Credit Administration Building), 2180 Milvia Way.* The former Federal Land Bank was designed by James W. Plachek and constructed in 1938. The building was designed in the Works Progress Administration (WPA) Moderne style with a symmetrical three-part composition.

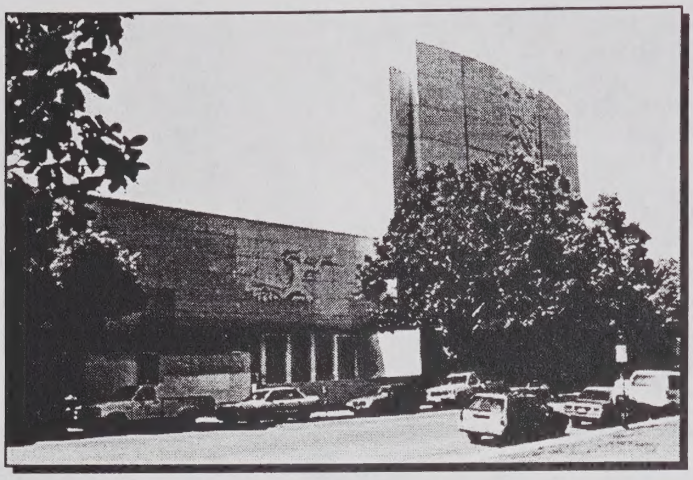


***Armstrong University** (formerly Armstrong Business College), 2222 Harold Way.* Founded in 1918 by J. Evans Armstrong and located in a small building on Shattuck Avenue, the college moved to its present location in 1923. Walter H. Ratcliff, Jr. designed the college building. It features an entrance that is covered by an elaborate Baroque-style balcony and notable arched windows.

***Pasand Hotel** (former Donough Arms Building, originally the Morse Block), 2276 to 2286 Shattuck Avenue.* Completed in 1906 and designed by Dickey and Reed in the so-called Edwardian style, the building was originally designed with commercial space on the ground floor (later altered) and residential units (now converted to office use) on the upper floors.

***Veterans Memorial Building**, 1931 Center Street.* The Veterans Memorial Building was constructed in 1928. The architect, Henry H. Meyers, designed the building in the Neo-Classic style long favored for the design of public buildings across the country. The building is owned by the County of Alameda, but managed by a council of Berkeley veterans.

***Old City Hall Annex** (Berkeley Unified School District offices), 1935 Allston Way.* The Old City Hall Annex was designed by James W. Plachek and constructed in 1926 to house the offices of health, sanitation, and parks and playgrounds. This building is a residentially-scaled structure in a simplified Craftsman style.



Berkeley High School and Community Theater, 1922 Allston Way. The three buildings on the Berkeley High School Campus are an outstanding architectural ensemble designed by William Corlett and Henry Gutterson in the Moderne style of the late 1930s and the 1940s. The Berkeley High School Community Theater was not dedicated until June 5, 1950, 10 years after construction began. By December 1941, the steel frame of the almost circular building was nearly complete. When the United States entered World War II, construction came to a standstill and was not resumed until 1949. The open steel-frame theater stood incomplete for almost a decade and became known as the "bird cage."

United States Post Office, 2000 Allston Way. Completed in 1915, the United States Post Office building was designed by Oscar Wenderoth in the Neo-Classical Renaissance Revival style. It features high round arches on plain Tuscan columns and a wide beltcourse that separates the ground and second floors. The building's entrance on Allston Way includes broad steps and a loggia whose arches repeat those of the building front. The building's murals are the work of Suzanne Scheuer and were painted in 1936 to 1937 for the Treasury Relief Art Project.

Downtown Berkeley YMCA, 2001 Allston Way. Constructed in 1910 on land donated by Mrs. Francis Kittredge Shattuck, this building was designed by Benjamin McDougall in a variation of the Neo-Classic style called Edwardian. Building materials include red brick and cream colored stone. The central entrance is flanked by Tuscan columns and pilasters and topped by a balustrade and window composition.

Elks Club, 2018 Allston Way. Established in 1905 by local businessmen, the Elks Club Building was designed by Walter H. Ratcliff, Jr., in the so-called Edwardian style and constructed in 1913 to 1914.

Hotel Shattuck (Hink's), 2068 to 2070 Allston Way and Shattuck Avenue, 2060 to 2099 Kittredge Street. The Hotel Shattuck was constructed in four phases from 1909 to 1957. The dominant architectural style of the building is Edwardian with overtones of the Mediterranean Revival style. The architect for the 1909 and 1913 phases was Benjamin McDougall, the architect for the 1926 addition was Walter H. Ratcliff, Jr., and the 1957 addition was the garage. J.F. Hink and Son, a family-owned department store, occupied the building's ground floor from 1915 to 1985.

Berkeley Main Public Library, 2090 Kittredge Street. The Berkeley Public Library building was designed by James W. Plachek in the early Modern style called Art Deco and constructed in 1931. It replaced an earlier library building on this site in 1905. The building facades on the east, north and west include banks of tall windows that provide light to interior reading rooms. The windows are flanked by tall columns topped with leaf motifs.

a. Additional Buildings or Resources of Potential Historic Significance. Five properties within the planning area do not appear on any listing of historic resources but may be of interest in historic terms. They include Martin Luther King Jr. Park, the Hall of Justice, the Fire Administration Building, the McKinley House, and the 16-unit apartment building located at 1907 Center Street. In addition, the Framat Lodge was designated a City Landmark on April 7, 1997. Each of these resources is described below.

Martin Luther King Jr. Park, Martin Luther King Jr. Park has not been designated a landmark, nor is it listed as a significant resource in the BAHA inventory or any other inventory.

In 1940, the City began the process of purchasing the park block. The bond measure approving its purchase and development was approved by voters in 1940, and by 1942, Berkeley was celebrating its new public open space. By that time, the basic form of the Civic Center was much as it is now.

In respect to integrity of historic character, the Civic Center Park is a problematic element of the Civic Center. As it appears now, the park does not relate strongly to the original design created in 1940 by the Civic Center Committee, headed by Henry H. Gutterson and composed of Professor John W. Gregg, Dr. Baldwin M. Woods, Bernard R. Maybeck, and Julia Morgan. Although the park may deserve landmark

status, research is needed to show how and when the subsequent alterations to the park's plan and landscaping were made.

And, apart from a small number of newspaper accounts from the mid-1940s, there does not appear to be any graphical documentation of the committee's work or meeting minutes to indicate the relative roles played by the two most noteworthy members of the group: Maybeck and Morgan.

At what point over the last 55 years did the current design and landscaping replace the committee's design is also a very difficult question to answer. It is possible that the Bancroft Library at the University of California has, in its vast uncatalogued collection, some reference materials that would shed light on the Park's design history. Such research would be extraordinarily time-consuming, however.

Hall of Justice, 2171 McKinley Avenue. The Hall of Justice was built in 1939, and now houses the Berkeley Police Department. The Hall of Justice has not been designated a landmark, nor is it included in the BAHA inventory. The SHPO evaluated the building in April 1995, and found it to be ineligible for listing on the *National Register.*[1]

Fire Administration Building, 2121 McKinley Avenue. The Fire Administration Building was built in 1955. Like the Hall of Justice, the Fire Administration Building has not been designated a landmark, nor is it included on the BAHA inventory. At the same time as it evaluated the Hall of Justice, the SHPO evaluated the Fire Administration Building, and found it to be ineligible for listing on the *National Register* .[2]

[1] State Office of Historic Preservation, *Directory of Properties in the Historic Property File for Alameda County*. January 2, 1996.

[2] Ibid.

McKinley House, 2111 McKinley Avenue. The McKinley House was moved from Atherton Street between Allston and Bancroft Ways to its current location in 1930. The McKinley House has not been designated a landmark, and it is not included on the BAHA inventory. The SHPO evaluated the building in July 1988, and determined it to be ineligible for listing on the *National Register*.[3]

Center Street Apartment Building, 1907 Center Street. A 16-unit apartment building is located immediately west of the Veteran's Memorial Building. This building has not been designated a landmark, and it is not included on the BAHA inventory. There is no record that it ever has been reviewed by the SHPO for its historical significance. It does not appear to the authors of this EIR to represent a resource of significant historical value.

Framat Lodge, 1900 Martin Luther King Jr. Way. This building is located on the southeast corner of Addison Street and Martin Luther King Jr. Way. It features a very rich and embellished form of brick facade, full of ornamentation and detail. It was added to the BAHA inventory in 1995 and was designated an architecturally significant building by the authors of the *Downtown Berkeley Design Guidelines*. On January 6, 1997, the Landmarks Preservation Commission (LPC) voted to "Initiate" the building as a City

[3] Ibid.

Landmark and begin the process for possible designation as a City Landmark. The public hearing on the designation was held on April 7, 1997. At that time the LPC voted affirmatively to designate the building as a City Landmark. According to City records, the building was built in 1926 and designed by S.G. Jackson who was not associated with any other Berkeley buildings. It is presumed that S.G. Jackson was a Midwest architect because many of the structural details of the original building were similar to Midwest buildings, according to the architect responsible for remodelling the building in the 1970s.[4]

According to a 1980 article in the Independent & Gazette,[5] the Framat Lodge is part of a fraternal organization of Swedish men and women called the Vasa Order of America. The letters "VOA" can be found on the cornerstone. The building was dedicated by a member of the Swedish royal family and was used for many years as the center of social activity for the Berkeley lodge.

Special detailing can be found in many parts of the facade which includes original brick work that has never been painted. Windows that face Addison Street are framed by glazed terra cotta pilasters capped with flat composite capitals. Similar pilasters frame the windows that face Martin Luther King, Jr. Way. Remodelling over the years has resulted in the addition of new windows and awnings at the ground floor, and planter boxes.

1. Impacts and Mitigation Measures

The *Civic Center Urban Design Plan* and Public Safety Building would have a significant impact on historic resources if they would:

- Result in the demolition or substantial alteration of any historic structure designated as a City Landmark or documented in the BAHA Historic Inventory.
- Compromise the integrity of significant historical resources in the Civic Center.
- Conflict with an adopted ordinance, regulation, or planning document pertaining to an historic and/or architecturally significant resource.

a. Civic Center Urban Design Plan.

Civic Center Urban Design Plan

Impact C-CC-1: Development envisioned by the *Civic Center Urban Design Plan* (specifically, the proposed Alameda County Courthouse) would result in the demolition of the Framat Lodge, a structure that has been designated a City Landmark by the City Landmarks Preservation Commission. (S)

[4] The Independent Gazette. July 3, 1980.

[5] Ibid.

Civic Center Urban Design Plan

The Framat Lodge was designated a City Landmark in April 1997. It was also designated an architecturally significant building by the authors of the *Downtown Berkeley Design Guidelines* (1994).

Development by the County of Alameda, as an independent governmental agency, is not required to conform with City land use policies. Accordingly, the City cannot require it to make any special findings outside of those required by all governmental agencies under the requirements of the California Environmental Quality Act. An Environmental Impact Report is being prepared for the County Courthouse project which will consider the impacts on historic resources and recommend appropriate mitigations.

A two-part mitigation measure is recommended to address potential impacts of the *Civic Center Urban Design Plan.*

> Mitigation Measure C-CC-1a: Further research into the historic resource value of the Framat Lodge should be undertaken prior to approval of the Alameda County Courthouse.
>
> Demolition or alteration of the Framat Lodge should only be allowed if it can be found that acceptable mitigation measures can be developed. One such mitigation measure might include incorporation of the Framat Lodge exterior features into the design of the new courthouse. This could only occur as long as the architectural program needs and overall design of the courthouse would not be seriously compromised.
>
> Alternatively, funding for restoration of other nearby historic structures deemed more significant than the Framat Lodge (i.e., Old City Hall or the Veterans Memorial Building) could be provided by the County. The specific fee would have to be negotiated between the City and the County.
>
> Mitigation Measure C-CC-1b: The Landmarks Preservation Commission shall review the proposed demolition of all non-residential structures greater than 40 years old to determine if they are historically significant structures. In addition, the City will comply with all state and federal laws relating to historic resources. Demolition or alteration of structures within the Civic Center that may be historically significant will be considered a less-than-significant impact only if it can be found that the structure is not a significant resource, or that acceptable mitigation measures can be developed. (SU)

Because the City cannot require the County to mitigate this impact, it remains significant and unavoidable.

Impact C-CC-2: Proposed additions and renovations to the Martin Luther King Jr. Civic Center building have the potential to change the historic character of the building and its relationship to Martin Luther King Jr. Park. (S)

The Martin Luther King Jr. Civic Center building is a designated City Landmark. The building and its relationship to its street fronts and to Martin Luther King Jr. Park are important contributors to the character of the Civic Center. Historic Preservation and Urban Design policy No. 4.4 of the *Berkeley Downtown Plan* directs that expansions or additions to buildings "should keep within the character of the Civic Center..." (*Berkeley Downtown Plan*, page 25) The relationship between the Martin Luther King Jr. Civic Center building and Martin Luther King Jr. Park, and between the Martin Luther King Jr. Civic Center building and Old City Hall are important relationships that need to be maintained.

The Civic Center Urban Design Plan calls for the removal of barriers between the Civic Center building and the park. The Plan's intent is to emphasize City Government as accessible to the public, both symbolically and physically. While these intentions would seem compatible with sensitive treatment of the park, the addition of 20,000 square feet of office space to the building raises the potential for an adverse impact. The following mitigation measure would reduce the potential impact to a less than significant level.

> Mitigation Measure C-CC-2: The LPC shall review the proposed alteration, modification or demolition of the Martin Luther King Jr. Civic Center Building in accordance with the provisions of the *Landmarks Preservation Ordinance.* Any changes to the building and park shall be historically sensitive, and shall conform to the Landmarks Preservation Ordinance and all applicable historic preservation regulations. (LTS)

Public Safety Building

b. Public Safety Building. The construction of the Public Safety Building would result in the demolition of the Hall of Justice and the Fire Administration Building. These potential impacts are not significant as neither the Hall of Justice nor the Fire Administration Building is historically significant.

D. PUBLIC SERVICES AND INFRASTRUCTURE

■ ■ ■

This section provides the existing public services and infrastructure setting and analyzes the potential impacts of the proposed program and project on public services and infrastructure.

1. Setting

This section describes existing public services and public infrastructure. Public services include police, fire protection and emergency medical services, and schools. Infrastructure includes the sanitary sewerage, storm drainage, water, streets, sidewalks, gas, electric, and telecommunications systems.

a. Police Services. The Berkeley Police Department provides police services to the Civic Center planning area. The police department is headquartered in the Hall of Justice at 2171 McKinley Avenue. In 1992, the Berkeley Police Department consisted of 181 sworn officers and 135 additional staff members.[1]

Police services in the Civic Center planning area are provided by one foot patrol officer and by vehicular patrols. The number of vehicular patrols varies daily depending upon the incidence of crime and the number of calls for assistance each day. The police department also provides crime prevention seminars and organizes a "business watch" within the downtown.

b. Fire and Emergency Medical Services. The Berkeley Fire Department provides fire and emergency services to the Civic Center planning area. Citywide, the department operates seven fire stations including seven engine companies, two truck companies, and two ambulances. The station providing primary service to the Civic Center study area is Station No. 2 at 2025 Berkeley Way. The station providing secondary service to the planning area is Station No. 5 at 2680 Shattuck Avenue. Each of these stations has one truck, one engine, and one ambulance. Emergency response time to the Civic Center planning area is estimated at between two and five minutes. Fire

[1] City of Berkeley: *Conditions, Trends, & Issues: A Background Report for Updating the City's General Plan*. September 1993.

Department Administrative offices are located in the Fire Administration Building at 2121 McKinley Avenue. There are currently 30 administrative staff within the Fire Administration Building.

The Berkeley Fire Department provides fire fighting and rescue services, emergency medical services, emergency hazardous materials response, mutual aid assistance, and response to freeway accidents. Emergency medical services include advanced life support and ambulance service staffed by paramedics.

The Fire Department also administers the Uniform Fire Code and the applicable sections of law contained in the California Health and Safety Code, California Administrative Codes, Title 19, Public Safety, and Title 24, Building Standards. These regulations establish minimum requirements for building construction. Additionally, the Berkeley Fire Department participates in the City of Berkeley's development review process, which allows it the opportunity to comment upon building design and materials. The *Downtown Plan* policy related to fire services in the downtown is as follows:

> As part of any submittal for new construction or renovation, project managers shall include adequate plans and materials addressing internal sprinklering and smoke detection systems, on-site water supply (as required by State law), as well as an evacuation plan.

c. Public School System. The Berkeley Unified School District (BUSD) provides public education within the Civic Center planning area. School district administrative offices are housed in Old City Hall at 2134 Martin Luther King Jr. Way.

(1) Elementary School. Washington Elementary School at just south of the Civic Center planning area is the elementary school closest to the planning area. Washington Elementary School provides kindergarten through third grade education to children within the Civic Center planning area.

(2) Middle School. The middle school nearest to the neighborhoods west of the Civic Center planning area is Willard Middle School, at 2425 Stewart Street at Telegraph Avenue. Willard Middle School serves students in the 6th, 7th, and 8th grades. Middle school students also may choose to attend one of the other two public middle schools in the City when space allows.

(3) High School. Berkeley High School, the City's single public high school, occupies the large block between Martin Luther King Jr. Way, Allston

Way, Milvia Street, and Channing Way. Part of the high school campus lies within the planning area.

d. Sanitary Sewer System. The City of Berkeley owns and maintains the sanitary sewage collection system in the Civic Center planning area. The City's system flows to a regional interceptor line owned and maintained by the East Bay Municipal Utility District (EBMUD). The regional interceptor parallels the I-80 freeway to the EBMUD wastewater treatment plant at the base of the San Francisco Bay Bridge. Treated effluent is discharged into San Francisco Bay.

e. Storm Drainage System. Storm water runoff within the planning area is collected and emptied into Strawberry Creek. Strawberry Creek runs through the center of the planning area in culverts (see Figure 17). As noted above, sanitary sewerage is collected in a separate system.

f. Water Supply System. The East Bay Municipal Utility District provides water to the Civic Center planning area. Water comes from the Mokelumne River watershed. EBMUD also has a contract with the U.S. Bureau of Reclamation to obtain water from the American River, but these facilities have yet to be built.

g. Streets and Sidewalks. Since 1985, the City of Berkeley has employed a Pavement Management System (PMS) program designed by the Metropolitan Transportation Commission (MTC), to help prioritize asphalt street repair for the City's 213 miles of improved and maintained streets. This program is implemented through a five-year street and sidewalk plan that is reviewed annually by the City Council with the advice of the Public Works Commission.

In addition, the City maintains approximately 300 miles of concrete sidewalks. Presently, there are two types of sidewalk repair conducted in the City: emergency repair and a long-term "spiral" repair program. The City's policy is to repair all sidewalks which have been damaged as a result of street tree root intrusions. All other non-street tree root damage is the responsibility of the adjacent property owner, who must maintain the sidewalk in safe condition, according to state law and local ordinance.[2]

[2] City of Berkeley. *Conditions, Trends & Issues: A Background Report for Updating the City's General Plan*. September 1993.

h. Gas and Electrical Distribution Systems. Pacific Gas and Electric Company provides natural gas and electric service to the Civic Center planning area. Pacific Gas and Electric is a publicly owned corporation regulated by the California Public Utilities Commission.

i. Solid Waste Collection System. The City of Berkeley operates the refuse collection service within the Civic Center planning area. While the bulk of recycled materials in residential neighborhoods is collected through a curb-side recycling program, recycling in commercial areas such as the planning area is dealt with by private companies, or personal initiative, or it enters the solid waste system.

j. Telecommunications System. Pacific Bell provides the public telephone line network in the Civic Center planning area.

k. Cable Television Distribution System. Bay Cablevision holds the current cable television distribution system franchise in the Civic Center planning area. The franchise was most recently renegotiated in 1992.

2. Impacts and Mitigation Measures

The *Civic Center Urban Design Plan* and Public Safety Building would have a significant impact to public services and infrastructure if they would:

- Exceed existing sewage collection or treatment capacity.
- Extend a sewer trunk line with capacity to serve new development.
- Create demand for water beyond the available supply.
- Substantially degrade or deplete ground water resources.
- Breach published federal, state or local standards relating to solid waste, litter control, or recycling.
- Pose major problems in terms of provision of services such as electricity and gas.
- Require additional staff or equipment to maintain acceptable levels of police or fire protection services.
- Interfere with emergency response plans or emergency evacuation plans.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan. The following analysis considers the potential effects of the *Civic Center Urban Design Plan* on public services and infrastructure.

Civic Center Urban Design Plan

(1) Police Services. The Berkeley Police Department currently is headquartered in the Hall of Justice, a facility that has been determined to be hazardous in the event of a major earthquake. The City has determined that it would be prohibitively expensive to correct the code violations of the Hall of Justice and to bring it up to current standards for public and seismic safety.

The City determined from a careful analysis of the Police Department's space, adjacency, and access needs that a site generally located at the intersection of Martin Luther King Jr. Way and Center Street adjacent to the historic City Hall would be the optimum site for a new Public Safety Building, and the Berkeley City Council adopted a resolution identifying this site as the optimum site.

In addition to meeting these identified needs, the site proposed for the new Public Safety Building retains this important civic function within the civic center. Introduction or relocation of other civic uses to the Civic Center area may increase the area's employment and visitor levels. However, the small increase in calls for police response that would likely result would not represent a significant impact.

(2) Fire and Emergency Medical Services. The Berkeley Fire Department currently is headquartered in the Fire Administration Building, a facility that has been determined to be hazardous in the event of a major earthquake. The City has determined that it would be prohibitively expensive to correct the code violations of the Fire Administration Building and to bring it up to current standards for public and seismic safety.

As with the Police Department, the City determined that a site generally located at the intersection of Martin Luther King Jr. Way and Center Street would be the optimum site for a new Public Safety Building, and the Berkeley City Council adopted a resolution identifying this site as the optimum site.

Introduction or relocation of other civic uses to the Civic Center area may increase the area's employment and visitor levels. However, the small increase in calls for fire and emergency medical response that would likely result would not represent a significant impact.

(3) Public School System. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to significantly impact the public school system, and no mitigation measures are proposed.

Civic Center Urban Design Plan

Specific impacts to the public school system that might ensue from individual development projects contained within the *Civic Center Urban Design Plan* will be addressed through the City's standard development review process.

(4) Sanitary Sewage System. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to significantly impact the sanitary sewage system.

Specific impacts to the sanitary sewage system that might ensue from individual development projects contained within the *Civic Center Urban Design Plan* will be addressed through the City's standard development review process.

(5) Storm Drainage System. Except for the potential restoration of sections of Strawberry Creek, the *Civic Center Urban Design Plan* does not propose changes to City plans or policies that have the potential to significantly impact the storm drainage system.

Impacts to the storm drainage system that might result from a proposal to uncover sections of Strawberry Creek would involve the potential for the creek's storm drainage functions to be compromised. This potential impact could be mitigated by requiring that analysis of the feasibility of such a proposal include consideration of this concern. The authors of this report assume that maintenance of the storm drainage functions of Strawberry Creek would be integral requirement for any decision to uncover sections of the creek. No further mitigation measures are recommended.

Specific impacts to the storm drainage system that might ensue from individual development projects contained within the *Civic Center Urban Design Plan* will be addressed through the City's standard development review process.

(6) Water Supply System. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to impact the water supply system significantly.

Introduction or relocation of other civic uses to the Civic Center area may increase the area's water supply demands. However, the small increase in water supply demand that would likely result would not represent a significant impact. Furthermore, the other development proposed in the *Civic Center Urban Design Plan* is infill development addressed in the *Downtown Plan*, and the water supply infrastructure has been determined to be adequate to meet these demands.

Civic Center Urban Design Plan

Specific impacts to the water supply system that might ensue from individual development projects contained within the *Civic Center Urban Design Plan* will be addressed through the City's standard development review process.

(7) Streets and Sidewalks. The *Civic Center Urban Design Plan* proposes the development of a pedestrian-oriented civic center, with an improved street scape and a general discouragement of high volumes of automobile traffic. The City currently repairs streets and sidewalks on a rotational basis, and these infrastructure systems are expected to be maintained in the same manner with or without implementation of the *Civic Center Urban Design Plan*. For this reason, no significant impacts to the street and sidewalk system are anticipated as a result of the project.

(8) Gas and Electrical Distribution Systems. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to significantly impact the gas and electrical distribution systems.

(9) Solid Waste Collection System. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to significantly impact the solid waste collection system.

In many ways, the newly designed and constructed civic facilities should allow for much more convenient and efficient recycling of solid wastes than present facilities do.

(10) Telecommunications System. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to significantly impact the general telecommunications system.

In addition, the City has analyzed the emergency communications system used by the Berkeley Police and Fire Departments, and has determined that a new emergency communications system is needed to meet current standards and that its optimum placement would be as part of a new Public Safety Building.

(11) Cable Television Distribution System. The *Civic Center Urban Design Plan* does not propose any changes to City plans or policies that have the potential to significantly impact the cable television distribution system.

Public Safety Building

b. Public Safety Building. The following analysis considers the potential adverse effects of the construction and operation of the proposed Public Safety Building on public services and infrastructure. Expected beneficial consequences of the project are discussed in Chapter 2: *Description of the Proposed Actions.*

Public Safety Building

(1) Police Services. Construction and operation of the proposed Public Safety Building would not adversely effect the provision of police services in the City of Berkeley. Other than minor inefficiencies that might arise during the period in which the physical transition from the old facility to the new facility occurs, the Citywide impacts should be negligible or beneficial.

(2) Fire and Emergency Medical Services. Construction and operation of the proposed Public Safety Building would not adversely effect the provision of fire and emergency medical services in the City of Berkeley. Other than minor inefficiencies that might arise during the period in which the physical transition from the old facility to the new facility occurs, the Citywide impacts should be negligible or beneficial.

(3) Public School System. Construction and operation of the proposed Public Safety Building would not generate additional students, nor would its presence at the proposed location have adverse effects on the operations of Berkeley High School one block to the south, on the operation of Washington Elementary southeast of the Civic Center planning area, on the programs that the school district operates in the City Hall Annex, or on the operations of the Berkeley Unified School District Administrative Offices in Old City Hall.

(4) Sanitary Sewage System. The proposed Public Safety Building does not propose any increase in the total number of Police or Fire Department employees working in the new combined facility as compared to the two existing facilities that the combined facility would replace, nor does it propose any additional operations or activities that might require additional demands on the sanitary sewage system. Impacts to the sanitary sewage system should be negligible.

(5) Storm Drainage System. The development of the proposed Public Safety Building would not substantially change the amount of impervious surface on the block. The existing system of drainage from the site should be adequate to accommodate runoff generated after development of the Public Safety Building. Impacts to the storm drainage system should be negligible. It is assumed that maintenance of the storm drainage functions of Strawberry Creek would be integral requirement for any decision to uncover sections of the creek. No further mitigation measures are recommended.

(6) Water Supply System. The proposed Public Safety Building does not propose any increase in the total number of Police or Fire Department employees working in the new combined facility as compared to the two existing facilities that the combined facility would replace, nor does it propose

Public Safety Building

any additional operations or activities that might require additional demands on the water supply system. Impacts to the water supply system should be negligible.

(7) Streets and Sidewalks. The proposed Public Safety Building includes the provision of sidewalks and street trees surrounding the property. Though these plans are still in the development stages, and exact dimensions of the sidewalks are not available, they will be addressed by the project architect. No alterations to the street system are proposed as a result of the project.

The City currently repairs streets and sidewalks on a rotational basis, and these infrastructure systems are expected to be maintained in the same manner with or without implementation of the project. For this reason, no significant impacts to the street and sidewalk system are anticipated as a result of the project.

(8) Gas and Electrical Distribution Systems. The proposed Public Safety Building does not propose any increase in the total number of Police or Fire Department employees working in the new combined facility as compared to the two existing facilities that the combined facility would replace, nor does it propose any additional operations or activities that might require additional demands on the gas and electrical distribution systems. Impacts to the gas and electrical distribution systems should be negligible.

(9) Solid Waste Collection System. The proposed Public Safety Building does not propose any increase in the total number of Police or Fire Department employees working in the new combined facility as compared to the two existing facilities that the combined facility would replace, nor does it propose any additional operations or activities that might require additional demands on the solid waste collection system. Impacts to the solid waste collection system should be negligible.

In many ways, the newly designed and constructed civic facilities should allow for much more convenient and efficient recycling of solid wastes than present facilities do.

(10) Telecommunications System. The proposed Public Safety Building does not propose any increase in the total number of Police or Fire Department employees working in the new combined facility as compared to the two existing facilities that the combined facility would replace, nor does it propose any additional operations or activities that might require additional

Public Safety Building

demands on the general telecommunications system. Impacts to the general telecommunications system should be negligible.

In addition, the City has analyzed the emergency communications system used by the Berkeley Police and Fire Departments, and has determined that a new emergency communications system is needed to meet current standards. It has determined that its optimum placement would be as part of a new Public Safety Building.

(11) Cable Television Distribution System. The proposed Public Safety Building does not propose any increase in the total number of Police or Fire Department employees working in the new combined facility as compared to the two existing facilities that the combined facility would replace, nor does it propose any additional operations or activities that might require additional demands on the cable television distribution system. Impacts to the cable television distribution system should be negligible.

E. GEOLOGY AND HYDROLOGY[1]

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This section summarizes the existing geology, soils and hydrological setting for the planning area and project site, and discusses impacts that could result from the program and project. Mitigation measures to reduce potential impacts are also provided.

1. Setting

a. Geology and Seismicity. The Civic Center planning area is located in the Coast Range geomorphic province, which consists of a ridge-and-valley system. The compressional forces creating the present topography began during the middle Miocene (about 16 million years ago), and continue to modify the land surface today. The Civic Center planning area is underlain by older alluvium, which was deposited in the last 70,000 years. These materials generally consist of alternating layers of clays, silts, sands, and gravels.

Seismicity in the San Francisco Bay area is complex, due to the evolution of the convergent margin along the North American west coast. Seismicity in the area is dominated by the major strike-slip systems such as the San Andreas, Hayward, and Rodgers Creek Faults, but there is also a significant compressional element, shown by crustal shortening and thrusting in the eastern part of the Coast Range.[2]

(1) Active Faults. A fault is a fracture in the earth's crust along which the rocks on opposite sides have moved relative to each other. A variety of criteria are used in the literature to establish whether a fault is "active". Generally, a fault that has moved in historic time, or one that shows evidence of geologically recent displacement (within about the last

[1] Allan Kropp & Associates assisted in the preparation of this section on *Geology and Hydrology.*

[2] Wakabayashi, J., Smith, D.L. *Evaluation of Recurrence Intervals, Characteristic Earthquakes, and Slip Rates Associated with Thrusting along the Coast Range-Central Valley Geomorphic Boundary, California.* Bulletin of the Seismological Society of America, v.84, no. 6, pp. 1960-1970. 1994.

11,000 years), is regarded as active and is more likely to generate a future earthquake than a fault which shows no signs of recent movement.

Figure 14 shows seismically active faults that have been mapped in the region. Although the planning area is not within an Alquist-Priolo Special Study Zone (which are considered to have active faults) several active faults exist within several miles of the planning area. The nearest active fault is the Hayward Fault, which passes approximately one mile to the northeast. In addition, the active San Andreas and Calaveras Faults pass approximately 18 miles southwest and 19 miles east of the site, respectively.

(2) Earthquakes. Earthquakes result from the sudden release of strain energy stored in the earth's bedrock. Under pressure, the crust can be permanently distorted or can store the energy for later release. The release of energy can be slow, in the form of fault creep, or rapid, as an earthquake. Where the strain is concentrated, a fault is formed. Once formed, a fault tends to accept the localization of future strain.

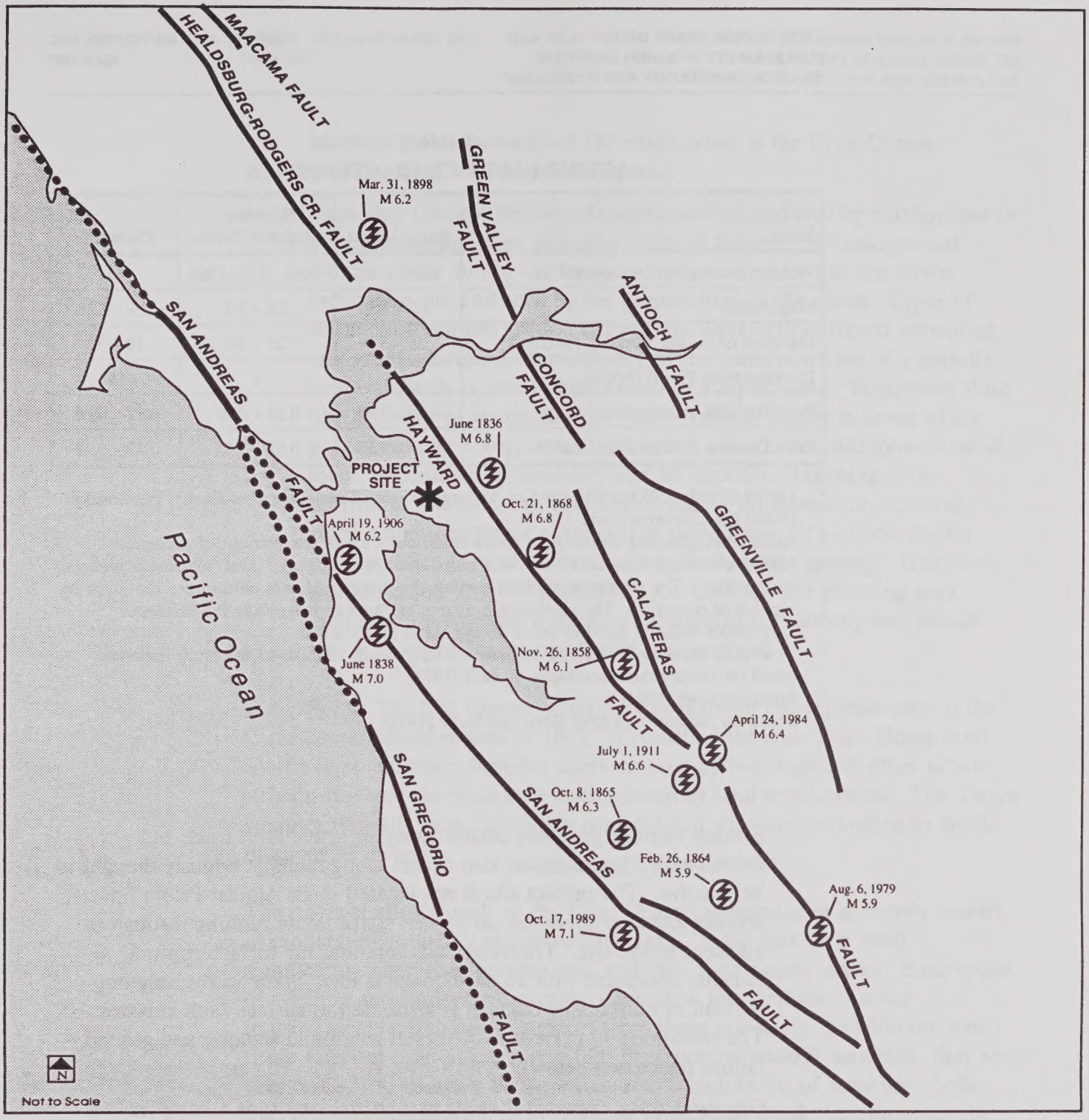
The Berkeley area has been subjected to numerous seismic events in historic times. There have been approximately 60 damaging earthquakes in the Bay Area since 1800. Almost all of these earthquakes were felt in Berkeley and some caused extensive damage within the City. Some of these earthquakes originated on faults located within the East Bay and others originated in other parts of the region.

Table 5 summarizes data and characteristics on active faults that may affect the Civic Center planning area. Recent studies suggest that there is an approximately 67 percent chance of a major earthquake (Magnitude 7 or greater) occurring within the next 30 years on one of the nearby active faults (Hayward, Rodgers Creek, or San Andreas).[3]

(3) Seismic Hazards. Potential hazards related to seismic activity include the following:

- *Surface Rupture*. In major earthquakes, fault displacement can cause rupture along the surface trace of the fault, leading to severe damage to any structures or other improvements located on the fault trace.

[3] Schwartz, D.P., Pantosti, D., Hecker, S., Okumura, K., Budding, K.E., Powers, T. *Late Holocene Behavior and Seismogenic Potential of the Rodgers Creek Fault Zone, Sonoma County, California*. in Borchardt, G., and others, eds., Proceedings of the Second Conference on Earthquake Hazards in the Eastern San Francisco Bay Area: California Department of Conservation, Division of Mines and Geology Special Publication 113, p. 393-398. 1992.



Source: Modified from California Division of Mines and Geology, Special Publication 78, 1987.

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 14
REGIONAL FAULT MAP

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Table 5
ACTIVE FAULT CHARACTERISTICS

Fault	San Andreas	Hayward-Rodgers Creek	Calaveras
Historic Damaging Earthquake[a]	1838, 1906	1808, 1836, 1868	1861
Magnitude[b]	7.0 - 8.5	7.0 - 7.5	6.5 - 7.25
Duration of Strong Shaking[c] (Seconds)	25 - 37	25 - 32	18 - 30
Distance from Fault[d] (Miles)	18	1	19
Peak Bedrock Acceleration[e] (g's)	0.28 - 0.38	0.68 - 0.70	0.17 - 0.28
Peak Ground Surface Acceleration[e] (g's)	0.27 - 0.35	0.62 - 0.68	0.17 - 0.27

[a] USGS Circular 1053 (1990) for San Andreas, Hayward and Calaveras Faults; Wesnousky (1986) for Calaveras Fault.
[b] Earthquake planning and seismic review often use a set of descriptions of predicted earthquake capabilities called the "maximum credible earthquake" and "maximum probable earthquake." The maximum credible earthquake is the maximum earthquake that appears capable of occurring. The maximum probable earthquake is typically the maximum earthquake believed likely to occur during a 100-year interval.
[c] Bracketed duration for ground motions are 0.5g within 10 miles of the fault. Estimates based on relationships developed by Bolt (1973).
[d] From Jennings (1994).
[e] Based on relationships from Seed and Idriss (1982).

Surface rupture generally occurs along an active fault trace, but occasionally, displacement also occurs along faults previously thought to be inactive. The project site is not located in an Alquist-Priolo Special Studies Zone, as there are no known active faults running through or adjacent to the site. Therefore, the potential for surface rupture hazards associated with an earthquake is low. Statistically, only one percent of earthquake damage is attributed to surface fault rupture. The remaining 99 percent is the result of ground shaking and ground failure (discussed below).

- *Groundshaking*. Seismic shaking at a particular site is a complex function of the distance to the earthquake source, the magnitude of the earthquake and the type, thickness and condition of the geologic materials (bedrock, sediment, soils, fill) at the site. Ground motion is strongest at the epicenter and diminishes with distance from the epicenter. The severity of ground shaking at any particular point is referred to as the earthquake intensity. It is estimated that a Modified

Mercalli (MM) Intensity of IX[4] could occur in the Civic Center planning area in a major earthquake.

- *Secondary Ground Failures*. Ground motions induced by earthquakes or aftershocks may cause secondary ground failures. Seismic ground failures occur during earthquakes, and are triggered by the strain induced in soil and rock by the groundshaking vibrations. Types of seismically-induced ground failures are liquefaction, lateral spreading and ground lurching. Liquefaction is the transformation of a granular material (such as sand) from a solid to a liquid state. Temporary fluid-like behavior of saturated sandy soils typically occurs in areas where groundwater is high. Lateral spreading is the horizontal movement of loose, unconfined sedimentary and fill deposits. Lurching is the horizontal movement of soil, sediments, or fill located on relatively steep embankments or unsupported slope faces. The Civic Center planning area is located on relatively level, strong ground. Therefore, the likelihood of ground failure in the Civic Center planning area, including liquefaction, during an earthquake is relatively low, except where filling of Strawberry Creek has occurred.

b. Soils. The Soil Conservation Service mapped the surficial soils in the Civic Center planning area in 1981. It classified the soils as an Urban land-Tierra complex, which includes areas covered by buildings and other urban structures where the soils have been altered by land development. The Tierra complex typically forms in weakly consolidated alluvium, extending to depths of about 32 inches.

The surficial alluvial soils in the Civic Center planning area generally consist of moderately to highly expansive silty clays. These materials swell significantly when they become wet, and then shrink upon drying. Such cycles of swelling and shrinking can cause damage to foundations or other improvements which derive support from these materials. In addition, when these soils are used as engineered fill or structural backfill materials, they are very difficult to compact because they retain high levels of moisture. Soils that have been excavated from trenches or building areas sometimes can be re-used as fill with careful treatment. In other situations, however, it may be

[4] The Modified Mercalli (MM) intensity scale describes impacts on natural features, constructed objects and structures, and human life based on qualitative information. The MM scale ranges from a low of I (not felt) to a high of XII (total destruction). MM IX is described as "Damage considerable in specially designed structures; well-designed structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations; ground cracked conspicuously. Underground pipes broken".

more economical to haul these materials away and to import materials that are more convenient to compact.

c. Hydrology. The Civic Center is a highly urbanized and most of the planning area is covered by buildings or streets which create a large surface area for runoff. Hydrology issues are generally related to the Strawberry Creek culvert and groundwater, as discussed in more detail below.

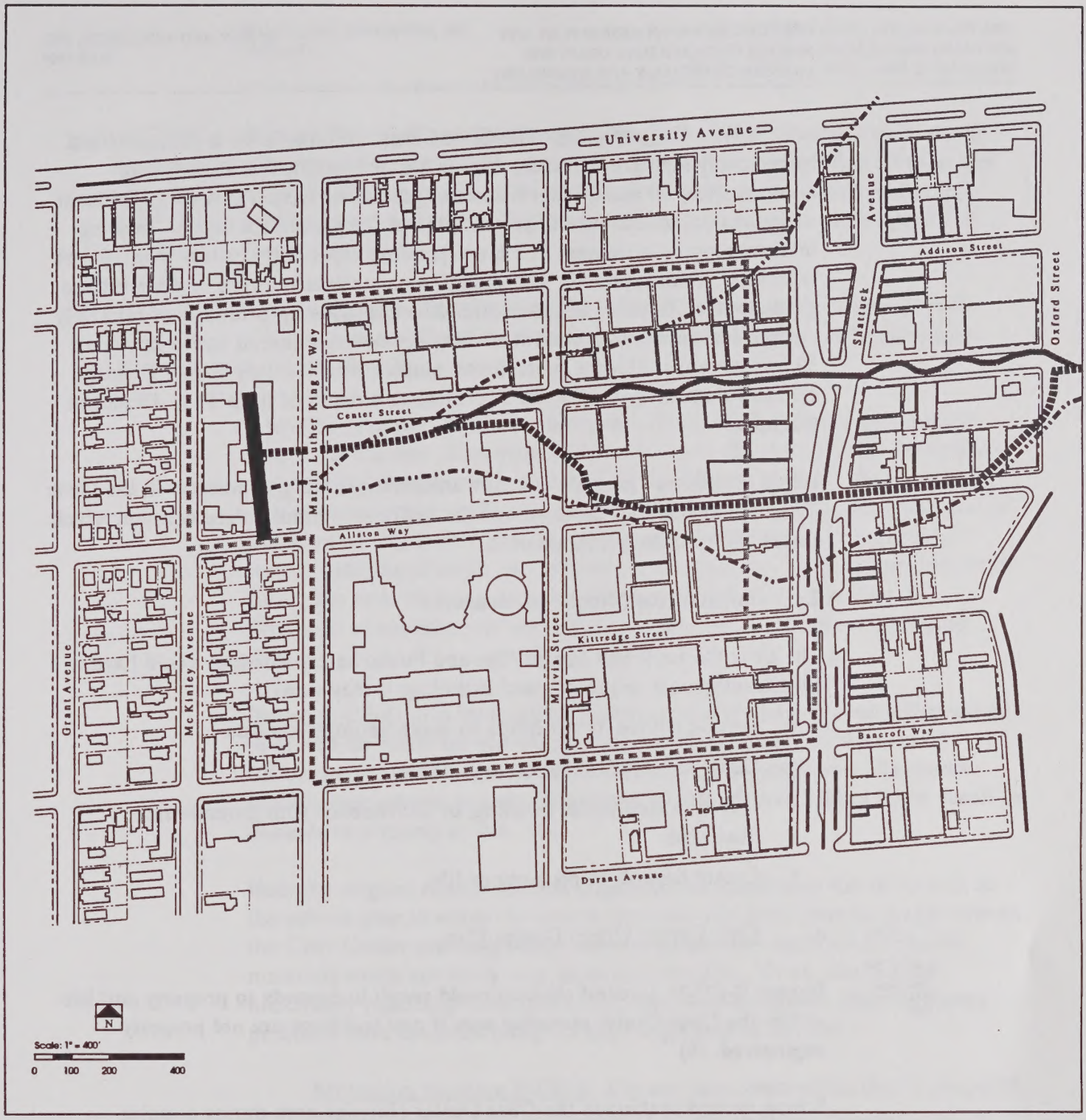
(1) Strawberry Creek. Strawberry Creek was one of Berkeley's main creeks. Historically, Strawberry Creek flowed openly through what is now the Civic Center planning area, flowing west between what is now Allston Way and Center Street.

As development began downtown, portions of the creek were filled. Final filling of the creek in this part of Berkeley was completed in the early 1930s. At that time, the main flow of the creek was placed in a storm drain pipe from where it exited the University of California campus, and conveyed beneath the ground surface. The filling of the creek was not done in accordance with contemporary engineering standards. Loose fill materials simply were placed into the creek bank, and generally were not well compacted. Over the 50 years that the creek has been piped and covered, various cave-ins and other failures have occurred as portions of the buried creek bed erode away and the ground surface collapses. Recently (early 1996) such an event occurred in the northwest corner of Martin Luther King Jr. Civic Center Park. The culvert is being reconstructed to correct this recent ground surface collapse.

In the Civic Center planning area, the existing underground culvert generally flows under Allston Way from Shattuck to Harold Way, then travels in a northwest direction to Milvia Street, and proceeds to flow under the Martin Luther King Jr. Civic Center and Plaza approximately 50 feet south of Center Street, as shown in Figure 15. The culvert is generally six to eight feet below the street level. Considering the five- to six-foot height of the culvert, the bottom of the structure is about 11 to 14 feet below the street level.[5]

Because of the loose fill materials that were used in the past, any building foundations or other improvements placed on older fill could experience significant distress in the event of the loss of support under either seismic or non-seismic conditions. In addition, basements near the creek channel also could experience significant disruption from subsurface water flows.

[5] *Draft Environmental Impact Report for the Berkeley Downtown Plan.* Prepared for the City of Berkeley by Mundie & Associates. March 1989.



Existing Underground Culvert

Original Creek Channels

Proposed Above Gound Channel

Boundary of Information

Source: From sketch plan by Doug Wolf, Berkeley Citizens for Creek Restoration

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 15
LOCATION OF
STRAWBERY CREEK FEAUTURES

(2) Groundwater. The Civic Center planning area is characterized by relatively high groundwater. Groundwater typically lies at depths of approximately 10 and 20 feet below the ground surface. However, significant variations occur because of the character of the subsurface layers. In some instances, water is trapped in a more pervious layer that lies less than 10 feet below the ground surface. This situation may produce a type of near-surface groundwater. In other instances, the soils are made up primarily of relatively impervious clays, and groundwater may not be encountered above depths of 30 feet or more. Recent geotechnical studies for the Public Safety Building estimate that the ground water is present at a depth of from 14 to 19 feet in this area.[6]

Based on regional groundwater flow information, the groundwater in the Civic Center planning area flows follows the regional ground surface contour, which slopes towards the west/southwest.

2. Impacts and Mitigation Measures

The *Civic Center Urban Design Plan* and Public Safety Building would have a significant impact to geology and hydrology if they would:

- Expose people or structures to major geologic hazards.
- Cause substantial erosion or siltation.
- Result in substantial flooding, or interference with groundwater discharge.
- Create hazards to property or life.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan.

Impact E-CC-1: Ground shaking could result in hazards to property and life within the Civic Center planning area if new buildings are not properly engineered. (S)

Strong ground shaking in the Civic Center planning area during a major earthquake in the Bay Area is inevitable. It is very likely that a major Bay Area earthquake will occur within the lives of all of the structures in the Civic Center planning area, except for those buildings that will be demolished as part of the proposed project. Although it is very unlikely that ground surface

[6] Geomatrix Consultants. *Draft Geotechnical and Earthquake Engineering Study, Public Safety Building.* Prepared for Leach Mounce Architects and the City of Berkeley. November 1995.

Civic Center Urban Design Plan

rupture from faulting would occur in the Civic Center planning area, strong ground shaking would take place, which could result in building damage and potential hazards to life. The magnitude of damage and potential hazards would depend on the building age, the type of structure, and the quality of construction.

> Mitigation Measure E-CC-1. New development and improvements within the Civic Center shall require a site-specific seismic response study. (LTS)

A seismic response study can reasonably characterize the potential ground motions at the site. Incorporating this seismic response spectrum into either new building design or into existing building seismic upgrade design, if done by a knowledgeable earthquake engineer, can substantially reduce the level of damage that might occur during strong earthquake shaking. In addition, careful detailing of plans and frequent site inspections by design professionals during the construction or renovation of a project also can reduce the likelihood of omissions or inappropriate installations of critical structural elements.

Impact E-CC-2: Any building foundations or other improvements that might be placed on either the old channel of Strawberry Creek or the current culvert could experience significant distress and potential loss of support under either seismic or non-seismic conditions. This condition could result in hazards to property or life. (S)

Both the original stream channel alignment for Strawberry Creek, as well as the culvert pipe in which the stream flow now has been placed, extend through the Civic Center planning area. The stream channel has been filled with materials which are likely very loose and unstable. There also is some uncertainty regarding the construction details of the culvert pipe, and some problems have occurred along the pipe alignment in the past.

> Mitigation Measure E-CC-2: For any new construction that is proposed within the alignment of Strawberry Creek, remedial measures such as building underpinning, removal and re-compaction of loose fill, and/or removal and reconstruction of culverts, shall be taken within the original stream channel, and the existing culvert. (LTS)

The general locations of the original Strawberry Creek channel, and the existing stream culvert (Figure 15) should be used as a baseline for conducting specific studies of specific locations of these features where new or existing buildings may be impacted. Based upon the results of such studies, the above

Civic Center Urban Design Plan

mitigation measure should be implemented. Following the implementation of the above measure, no significant impacts are anticipated.

Impact E-CC-3: New construction of basements or underground facilities could result in hazards to property and life due to high groundwater conditions. (S)

The relatively high groundwater conditions in the Civic Center planning area could have an effect on existing or proposed basements. Construction activities for new basements or other facilities below or near the groundwater level can be very costly, and stable and workable conditions in such environments can be very difficult to maintain. Existing facilities at or near the groundwater level also may be impacted by moisture-intrusion problems.

> Mitigation Measure E-CC-3: Where existing or proposed facilities include improvements or foundations at or near the groundwater level, site specific studies should be performed to provide more detailed information regarding the groundwater location. Site-specific measures may be required to prevent hazards related to high groundwater, including temporary shoring, de-watering, or other water diversion measures. (LTS)

Impact E-CC-4: During swelling and shrinking of expansive soils, foundations or other improvements that derive support from these materials can be damaged. In addition, when expansive soils are used as engineered fill or structural backfill, they are very difficult to compact because they retain high levels of moisture. (S)

> Mitigation Measure E-CC-4: Where expansive soils are present in areas of new construction, site-specific studies shall be performed by a geotechnical engineer to provide recommendations to minimize future damage. (LTS)

Building foundations generally will have to extend below zones where movement of expansive soils could be detrimental. Slabs and other concrete flatwork generally should be underlain by a layer of non-expansive, imported material. Drainage should be controlled carefully around structures to minimize the accumulation of water that increases the swelling of expansive soils. Roadway or parking lot pavement sections also may have to be thickened to resist uplift forces of expansive soils. Expansive soils from excavations within Civic Center planning area may have to be treated before they can be used as engineered fill or structural backfill, although in many situations it may be more economical to haul these materials away from the

site and to import materials that more conveniently achieve recommended levels of compaction.

Public Safety Building

b. Public Safety Building. In November 1995, Geomatrix Consultants completed a site-specific assessment geotechnical and earthquake engineering study for the proposed Public Safety Building.[7] The purpose of the study was to provide geotechnical and earthquake engineering information for use in the overall evaluation and design of the Public Safety Building. The following analysis is based on this report.

Impact E-PSB-1: Ground shaking could result in hazards to property and life at the Public Safety Building site. (S)

Although it is very unlikely that ground surface rupture from faulting would occur in the Civic Center planning area, strong ground shaking would take place, which could result in building damage and potential hazards to life.

> Mitigation Measure E-PSB-1: The project shall be designed to "essential services standards", a level of earthquake-resistent construction that will ensure that the building would remain fully functional during and immediately after a magnitude 7.0 earthquake on the Hayward Fault. (LTS)

Impact E-PSB-2: Groundwater infiltration may soften or disturb the foundation soils. (S)

Unexpected groundwater infiltration may create construction conditions which may result in conditions of settlement or other problems resulting from the disturbance of foundation soils.

> Mitigation Measure E-PSB-2: As necessary, a drainage and/or pumping system shall be required to collect and dispose of infiltrating water to prevent softening or disturbance of the foundation soils. (LTS)

Impact E-PSB-3: During swelling and shrinking of expansive soils, foundations or other improvements that derive support from these materials can be damaged. (S)

[7] Geomatrix Consultants. *Draft Geotechnical and Earthquake Engineering Study, Public Safety Building.* Prepared for Leach Mounce Architects and the City of Berkeley. November 1995.

Public Safety Building

The primary geotechnical consideration for the construction of the Public Safety Building is the high variability in the compressibility of the site soils, which are generally clayey sands and clayey sands with gravel. These soils are not continuous, and contain interbeds of relatively clayey soils, which are relatively compressible under the assumed building loads.

An additional concern is the expansion potential of the surficial clay soils encountered, which have a moderate to high expansion potential and may swell or shrink as a result of seasonal or man-made soil moisture content changes.

Mitigation Measure E-PSB-3: The following measures shall be implemented for the proposed Public Safety Building:

- If encountered at foundation level, the clay materials at the site shall be sub-excavated, and replaced to prevent significant differential settlements; and
- For structures and slabs located near the existing ground surface, over-excavation and re-compaction of existing fills and underlying natural surface soils shall occur within the limits and 10 feet beyond the limits of the proposed buildings. (LTS)

F. HAZARDOUS MATERIALS[1]

■ ■ ■

This section provides an overview of the potential presence of hazardous substances near and within the planning area and project site. Regulations pertaining to hazardous materials are presented, and the potential for hazardous materials to impact the project is evaluated.

This hazardous materials evaluation is based on the following information: 1) a review of regulatory records and historical data; 2) a review of aerial photographs; and 3) a general site reconnaissance, in addition to more detailed site reconnaissances of critical parcels.

1. Setting

a. Hazardous Materials Regulations. Hazardous materials and hazardous wastes are regulated extensively by federal, State, regional, and local entities, with the major objective of protecting public health and the environment. In general these regulations provide definitions of hazardous substances; establish reporting requirements; set guidelines for handling, storage, transport, remediation, and disposal of hazardous wastes; and, require health and safety provisions for both workers and the public. Regulatory agencies also maintain lists or databases of sites that are classified as hazardous waste generators or that store hazardous substances in underground storage tanks as well as sites where soil or groundwater quality may have been impacted by hazardous substances releases.

The major agencies enforcing these regulations are the following:

- US Environmental Protection Agency (federal)
- Department of Toxic Substances Control (State)
- California Regional Water Quality Control Board of the California Environmental Protection Agency (State)
- City of Berkeley Toxics and Emergency Management Division (local)

[1] Earth Tech assisted in the preparation of this section on *Hazardous Materials.*

The City of Berkeley Toxics and Emergency Management Division (Toxics) is the local implementing agency for the federal, State and City hazardous materials regulations. The Toxics Management Program also provides technical assistance and compliance consultations to businesses in the City that store, handle, treat, or dispose of hazardous materials and/or hazardous wastes. Pollution prevention, hazardous waste reduction, and source reduction are high priority efforts in the City of Berkeley.

In addition to the above regulating agencies, additional lists or databases of recorded hazardous materials sites, are also maintained by the following agencies:

- California Governor's Office of Planning and Research
- California Office of Emergency Services
- California Water Resources Control Board
- California Waste Management Board
- Alameda County Public Works Department
- East Bay Municipal Water District

b. Hazardous Materials Near the Site. Table 6 lists the known environmental sites that lie within an approximate one-mile radius of the project area. This summary was developed through a review of regulatory records that was performed using a commercial environmental database search. This database includes records of reported spills or releases of hazardous materials in nearby areas that may have contaminated the soil or groundwater. The table lists the databases searched, describes the types of records available, the responsible agency, and the number of sites listed. A detailed description of each of these database sources is included in Appendix C.

c. Hazardous Materials within the Planning Area. Of the 119 sites listed in Table 6, six are within the planning area, three sites are outside of but immediately adjacent to the northern boundary of the planning area, and five sites lie outside of and east of the planning area. In addition to this database search, the following activities and searches took place to further characterize hazardous materials within the planning area:

- *The Alameda County Public Works Department*. The Alameda County Public Works Department, Water Resources Division, maintains files on groundwater monitoring programs within or near the planning area. A review of existing files indicates that there are approximately 65 monitoring wells from a total of 11 individual sites within and adjacent to the planning area. Most monitoring wells were installed to identify and characterize groundwater contamination, and to demonstrate areas which have been remediated.

Table 6
HAZARDOUS MATERIALS WITHIN A ONE-MILE RADIUS OF THE PLANNING AREA

Database	Type of Records	Agency	Sites
CERCLIS	Contaminated Sites Under CERCLA (1980)	USEPA	None
NPL	Federal Superfund Sites	USEPA	None
RCRIS	Information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA	USEPA	6
CORTESE	Hazardous Wastes & Substances Site List	California Governor's Office of Planning & Research	69
CAL-SITES/ AWP	Contaminated sites listed on the Annual Work Plan, and cleanup sites under the Bond Expenditure Plan	California EPA	None
CHMIRS	California Hazardous Material Incident Reporting System	CA Office of Emergency Services	None
Notify 65	Facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.	CA Water Resources Control Board	None
TOXIC PITS	Identifies sites suspected of containing hazardous substances where cleanup has not yet been completed	CA Water Resources Control Board	None
UST	Hazardous Substance Storage Container Database. Under RCRA, USTs must be registered with the State properties (deed restrictions)	CA Water Resources Control Board	2
Coal Gas	Former Manufactured Coal Gas sites	Real Property Scan	2
CAL-SITES/ ASPIS	Actually or potentially contaminated sites under the Abandoned Site Program	California EPA	30
HWIS	Hazardous Waste Generators, Treatment, Storage, & Disposal Facilities	California EPA	None
SWIS	Active & Inactive Sanitary Landfills and Disposal Facilities	California Waste Management Board	None
LUST	Leaking Underground Storage Tanks	California Regional Water Quality Control Boards	10

Source: Earth Tech. 1996.

- *The East Bay Municipal Water District*. The East Bay Municipal Water District (EBMUD) issues industrial wastewater discharge permits to businesses in the planning area that emit high strength wastewater. These permits also encourage businesses to maintain the proper use, storage, and disposal of hazardous materials. A review of the files at the EBMUD Source Control Program revealed thirteen current source control permits issued to dischargers within or immediately adjacent to the planning area. Permitted activities were limited to automotive repair, photographic processing, printing, dry cleaning, and electroplating.
- *Site Reconnaissance*. A site reconnaissance was performed on August 8, 1995. Particular attention was given to parcels identified as sites of concern in the review of the regulatory records. Based on the site reconnaissance, there were no apparent violations of regulations governing the use, storage, and disposal of hazardous materials, and there was no indication of potential environmental concerns.

Based on the above information, it can be summarized that the use and storage of hazardous materials near the Civic Center is generally associated with businesses located along Addison Street and University Avenue to the north, and along Shattuck Avenue to the east. Environmental concerns include leaking underground storage tanks. Contaminants include leaking waste-oil, diesel oil, and gasoline. All sites have either been remediated and cleaned up, or are in the process of being investigated.

Environmental sites located in the planning area are now mostly occupied by offices. There are no industrial activities and only one automotive repair shop located within the planning area. Additional automotive repair shops are located adjacent to the northern boundary of the planning area.

2. Impacts and Mitigation Measures

The proposed project would have a significant impact related to hazardous materials if it would:

- Result in the introduction of sensitive land uses to areas which are unsafe due to the presence of hazardous materials.
- Create a potential public health hazard.
- Introduce activities which would result in the use, production, or disposal of materials in such a way that these materials would pose a hazard to human, animal, or plant populations.
- Contaminate a public water supply.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan.

Impact F-CC-1: Development in the Civic Center planning area could result in the release of hazardous materials. (S)

The sites identified in the database search and the site reconnaissance that have had releases of hazardous materials should have little or no impact in the Civic Center planning area. Most of the sites are on Addison Street, where no new construction is proposed. The sites along Addison Street are locations where hydrocarbons have been released to soil, which if necessary could be remediated by soil removal, soil vapor extraction, or other methods. However, conditions related to hazardous materials are dynamic, and could change within the 15- to 20-year planning horizon of the *Civic Center Urban Design Plan*.

> Mitigation Measure F-CC-1: Prior to demolition or construction of specific projects proposed under the Civic Center Urban Design Plan, a Phase I Site Assessment shall be performed for the specific development site, and site-specific mitigation measures shall be developed as necessary. (LTS)

This mitigation measure will insure that up-to-date information has been reviewed for future development projects proposed under the plan.

Public Safety Building

b. Public Safety Building. The single release identified on the block where the proposed Public Safety building would be sited was a diesel fuel release to air in 1990, which would not affect the proposed development. No significant hazardous materials impacts are anticipated with the development of the Public Safety Building.

G. TRANSPORTATION, CIRCULATION, AND PARKING[1]

■ ■ ■

This section provides an overview of the existing transportation, circulation and parking conditions within the Civic Center planning area. The potential for the program and the project to create transportation and circulation system impacts is then evaluated, and measures are proposed to mitigate possible impacts.

1. Setting

a. Civic Center Urban Design Plan. Because the *Civic Center Urban Design Plan* is intended to be consistent with the objectives and policies of the City's 1990 *Downtown Plan*, the setting description for the *Civic Center Urban Design Plan* portion of this EIR is limited to a summary and discussion of the key points in the *Downtown Plan* and its EIR, which were prepared in 1989, and provision of updated parking and traffic information. The following three documents were reviewed for this section:

- *Berkeley Downtown Plan*
- *DEIR on the Berkeley Downtown Plan*
- *Transportation Impact Analysis, Berkeley Downtown Plan—Traffic, Parking, Transit, Pedestrians*

(1) Traffic Conditions in the Downtown Area. The roadway network in the downtown is essentially unchanged since the *Downtown Plan and EIR* were prepared. The transportation impact analysis for the *Downtown Plan EIR* evaluated Levels of Service for eighteen intersections in the downtown area. Level of Service (LOS) is a measure of the performance of an intersection, with an intersection being designated A through F depending on the delay associated with vehicles using the intersection. Delay is a complex measure and is dependent on a number of variables including the quality of signal progression, the cycle length, the volume to capacity ratio, the number

[1] Background information, analysis of impacts, recommendation of mitigation measures and graphics for the *Transportation, Circulation and Parking* section have been prepared by Fehr & Peers Associates, Inc.

of turning movements and other factors. A description of the different levels of service and their relation to delay is presented in Table 7.

The *Downtown Plan* reported generally good overall service levels at the eighteen signalized intersections studied, with only one intersection operating at LOS D (Shattuck northbound/University Avenue). At several intersections, certain turning movements experienced LOS D, E or F without pushing the overall LOS below C.

Where possible, a comparison was made between intersection LOS reported in the impact analysis and LOS computed with volumes collected or updated for the Berkeley Citywide Traffic Model in 1994. The comparison shown in Table 8 shows minor changes and in certain cases slight improvements.[2]

(2) Existing Roadway Network, Civic Center Plan Area

(a) Freeways and Major Streets. The following freeways and major streets provide access to the planning area:

- *Interstate 80* connects the San Francisco Bay Area with the Sacramento region and continues east across the United States. Within Berkeley, Interstate 80 is oriented in the north-south direction. Interstate 80 and the nearby I-80/I-580 interchange operate at capacity during the peak commute hours. Since the 1989 Loma Prieta Earthquake, traffic capacity has been reduced at this interchange due to the collapse of the Cypress structure, causing an increase in traffic congestion on I-80.
- *University Avenue* is a four lane east-west arterial connecting the Downtown to I-80 and the Berkeley waterfront. The roadway is divided and has left turn pockets at every major intersection. Motorists turning

[2] The intersection of Shattuck/University (the westernmost half of the intersection) is currently calculated to operate at an overall LOS F, whereas the LOS at the time of the *Downtown Plan* preparation (1989) was observed to be LOS D. This indicates that congestion and delay at this intersection has increased significantly over the last five years (1989 - 1994). However, it is informative to describe the level of service on University Avenue as a whole, in addition to single-intersection service levels. The Alameda County CMA performs this analysis on a yearly basis, due to the designation of University Avenue as a "Principal Arterial" in the CMA's designated roadway system.

For arterial roadways, the LOS is based on the measured average vehicle speed. On University Avenue between Martin Luther King, Jr. Way and Shattuck Avenue, the 1996 average speed was measured at 17.1 miles per hour in the eastbound direction and 16.5 miles per hour in the westbound direction (PM peak hour). These speeds correspond to LOS C for the segment. Thus, the average speeds for the section of University adjacent to the downtown indicate that it is currently operating at acceptable service levels in both directions. (The CMA LOS standard is E.)

Table 7
LOS DEFINITIONS

Level of Service	Description	Average Delay (sec/veh)
SIGNALIZED INTERSECTIONS		
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.	$\leq$ 5.0
B	Progression is good and slightly more vehicles have to stop.	> 5.0 and $\leq$ 15.0
C	Progression is fair. The number of vehicles stopping is significant, though most vehicles do not have to stop. Individual cycle failures may begin to appear.	> 15.0 and $\leq$ 25.0
D	Progression is unfavorable and results in longer delays. Many vehicles stop. Individual cycle failures and the influence of congestion become noticeable.	>25.0 and $\leq$ 40.0
E	Progression is poor. Considered by many agencies to be the limit of acceptable delay. Individual cycle failures are frequent occurrences.	> 40.0 and $\leq$ 60.0
F	Progression is extremely poor. Unacceptable to most drivers, this level occurs when arrival flow rates exceed the capacity of the intersection.	>60.0
UNSIGNALIZED INTERSECTIONS		
A	Little or no delay	> 5.0
B	Short traffic delay	> 5.0 and $\leq$ 10.0
C	Average traffic delay	> 10.0 and $\leq$ 20.0
D	Long traffic delay	> 20.0 and $\leq$ 30.0
E	Very long traffic delay, failure, extreme congestion	> 30.0 and $\leq$ 45.0
F	Intersection blocked by external causes	> 45.0

Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board, 1994.

Table 8
INTERSECTION LEVEL OF SERVICE COMPARISONS
(1989-1995)

Intersection	1989 LOS	1994 LOS
Oxford St./University Ave.	B	C
Shattuck Ave. (NB)/University Ave.	D/E	D
Shattuck(SB) Ave./University Ave.	D/E	F
Martin Luther King Jr. Way/University Ave.	C	C
Oxford St./Bancroft Way	C	B

Source: Fehr & Peers Associates, Inc., 1996.

left from University Avenue onto a north-south street generally are not protected by a separate left turn signal phase.

- *Martin Luther King Jr. Way* is a major north-south roadway which runs from Adeline Street in south Berkeley to Hopkins Street and The Alameda in north Berkeley. Martin Luther King Jr. Way provides four travel lanes south of University Avenue.
- *Shattuck Avenue* is a major north-south roadway which runs from the City of Oakland to the south to Cedar Street in the north. Shattuck has four travel lanes along most of its length in Berkeley, with a two lane section between Alcatraz Avenue and Adeline Street, and another two lane portion north of Rose Street. The proximity of Shattuck Avenue to the State Route 24 on- and off-ramps in Oakland makes it a major southern entryway into the City. Shattuck Avenue is the main commercial boulevard and the most heavily used north-south roadway in the downtown.
- *Dwight Way* is a major street serving east-west travel between the Sixth/Seventh Street corridor in West Berkeley and the upper south side area of the City. Dwight Way becomes a one-way eastbound road with two travel lanes between Martin Luther King Jr. Way and Piedmont Avenue.

(b) Local Streets. The following local streets form the circulation network within the Civic Center planning area.

- *Milvia Street* is a two-lane north-south roadway located between Shattuck Avenue and Martin Luther King Jr. Way. It serves local

Downtown circulation, including trips to the City Hall building, some Alameda County Municipal Court facilities and Berkeley High School. This street is also a designated bicycle boulevard and is discouraged as a through street north of University through the use of speed humps.

- *Allston Way* is a two-lane east-west roadway, serving a primarily residential area west of Martin Luther King Jr. Way. East of Martin Luther King Jr. Way, Allston Way is first bordered by Civic Center Park and Berkeley High School to Milvia Street, and then continues east by the YMCA and the Downtown Post office before becoming a commercial corridor leading to U.C. Berkeley.
- *Addison Street* is a two lane east-west roadway, serving primarily a residential area west of Martin Luther Kings Jr. Way and serving a largely commercial area to the east. The Berkeley Repertory Theater and a large public parking structure are located west of Shattuck Avenue.
- *Center Street* is a two lane east-west roadway which connects the Downtown to the west side of the UC campus. Between Martin Luther King Jr. Way and Oxford Street, Center Street forms the northern border of Martin Luther King Jr. Civic Center Park. The Downtown Berkeley BART station is located at the Center Street/Shattuck Avenue intersection.
- *McKinley Avenue* is a two-lane north-south roadway at the southern boundary of the Civic Center area. South of Allston and north of Addison, McKinley is a residential street. Between Addison and Allston, McKinley is residential on the west side, while on the east side is located the Hall of Justice, the Fire Administration Building and, towards the center of the block, Old City Hall and the County Courthouse Building.

(3) Parking Conditions. Parking information in the *Downtown Plan EIR* transportation analysis was drawn from a parking inventory conducted in 1986. The 1986 inventory of all off-street and on-street parking facilities indicated that there were a total of 2,636 off-street parking spaces (of which 1,640 were available for public use, and the rest reserved for private employee or customer parking) and 794 on-street parking spaces. Thus, the total parking supply was 3,430 spaces and the total public parking supply was 2,434 spaces. The majority of the off-street spaces are located in large garages in the block between Shattuck and Milvia.

The 1986 inventory found that on- and off-street parking reached practical capacity during the mid-day. A subsequent report entitled *Parking Conditions Update*, produced in 1992, found similar conditions, with maximum practical

capacity (85 percent)[3] occurring at mid-day and 77 percent occupancy occurring at mid-morning. This study reports a total of 1,750 off-street public parking spaces available during the weekday, an increase of 110 spaces over the 1986 study, and 2,002 available at night due to the inclusion of University Hall Garage; and 794 on-street public parking spaces. Of the off-street spaces, 57 percent were leased on a monthly basis, and 15 percent were reserved for short-term parkers.

The mid-day occupancy findings of these studies were verified in part by a May 1995 survey of the "Hink's" garage, which was conducted by Fehr & Peers Associates for the Alameda County Courthouse EIR. This survey showed parking occupancy at or above 100 percent (using valet or "stacked" parking) at 9:00 AM, 12:30 PM and 3:00 PM. The Hink's garage, which is now operated by TransAction Companies, Ltd., provides 350 striped spaces. While indicative of parking conditions in the downtown, this single garage survey cannot be construed to indicate maximum capacity conditions at all of the major garages in the downtown. Anecdotal data from several Fehr & Peers Associates staff mid-day trips to the downtown have shown that some spaces are typically available in the Allston Street garage between 9:00 AM and 2:00 PM.

Parking in the downtown has been affected by the implementation and expansion of the City's Residential Parking Permit Program (RPP). The RPP allows unlimited resident parking (with permits) on designated streets, but imposes parking restrictions on non-residents. The program was implemented at the request of residents to discourage commuter parking in neighborhoods. When the RPP was established, it was expected that pressure on the downtown parking supply would increase and that the off-street parking would be increasingly used by long term parking commuters, thereby reducing the supply for short-term visitors and shoppers. In particular, it was estimated that an additional 35 to 260 long-term parkers (i.e., employees) would shift to downtown public parking once the permit limitations took effect. While it is impossible to measure the extent to which this shift took place, Fehr & Peers Associates' recent garage survey of "Hink's" garage indicates that parking is nearing capacity at at least one of the large, centrally located garages during the mid-day peak parking period.

[3] 85 percent to 90 percent is typically considered practical capacity, because occupancy levels above 90 percent inhibit space turnover and often require re-circulation as drivers search for spaces.

(4) Public Transit. As reported in the 1990 *Downtown Plan and EIR,* the downtown area continues to be well-served by public transit service. A BART station is located at Center and Shattuck Avenues; the Hall of Justice and Fire Departments are located approximately a four-block walk from the Downtown Berkeley BART station a distance of less than half a mile.

Alameda County Transit (AC Transit) runs several bus lines through the downtown area. Bus No. 15 provides the most access to the Civic Center area, running along Center and Martin Luther King Jr. Way in the Civic Center area. No. 15 connects El Cerrito and Montclair (Oakland), and runs along Martin Luther King Jr. Way through much of Berkeley. Other AC Transit routes in the downtown area include No. 8 (running between downtown and the Lawrence Hall of Science via North Berkeley), No. 9 (running between downtown and the Third and University Transit Center, via Hopkins and Gilman in North Berkeley) and No. 67 (running between downtown and Kensington), and No. 51 (connecting the Berkeley Marina, Berkeley downtown, downtown Oakland, and Alameda). The current level of transit availability is reduced from Downtown Plan conditions due to AC Transit's cutting of some week-end and late-night service in 1995. Currently, post-midnight service has been discontinued on all routes serving downtown Berkeley.

To the degree that the *Civic Center Urban Design Plan* encourages new development in the downtown area, it should consider accessibility to transit as an important concern and promote:

- Accessibility of workers to transit.
- The provision of adequate amenities such as shelters to encourage transit usage.
- Amelioration of auto, pedestrian and bicycle conflicts that may discourage efficient use of transit.

(5) Pedestrian and Bicycle Facilities. The key issues in the *Downtown Plan EIR* discussion on bicycle and pedestrian circulation relate to safety. These issues continue to be important today, although certain improvements have been made to enhance walking and bicycling, such as lengthened signal phases to allow comfortable crossing clearance. Factors affecting bicycle safety in the downtown include provision of continuous, clearly designated routes, and provision of secure bike racks. In the downtown area, bicyclists must share the roadway with autos, as well as maneuver close to parked vehicles and pedestrians at intersections. Nighttime safety is another factor that affects the choice to walk, and is an issue that can

be addressed in the *Civic Center Urban Design Plan* in terms of the location and linkage of civic buildings and provision of appropriate lighting.

b. Public Safety Building. The following discussion supplements the setting discussion provided above for the *CCUDP* of the current transportation conditions in the vicinity of the Public Safety Building project, including the roadway system, traffic conditions, parking conditions, transit availability, and pedestrian and bicycle access. This section also describes the current trip generation of the Police and Fire Departments, which would be relocated to the new building.

(1) Existing Roadway Network. The overall street system serving the Public Safety Building is the same as that described for the Civic Center Area. The following discussion focuses on the streets in the immediate vicinity of the Public Safety Building. Figure 15 shows the major streets and key study intersections in the Public Safety Building project site area, and Figure 16 gives the lane configuration and control type for those study intersections.

(a) Major Streets. The following major streets provide access to the Public Safety Building site.

- *University Avenue* is the main east-west arterial street providing access to the Public Safety Building site.
- *Martin Luther King Jr. Way* is a four-lane north-south roadway which would provide access to the Public Safety Building site. There is a signalized intersection with left turn pockets at Allston Way.

(b) Local Streets. The following local streets form the circulation network in the vicinity of the Public Safety Building site.

- *McKinley Avenue* is primarily a residential two-lane north-south roadway, with stop signs at Allston Way and Addison Street. McKinley is at the western edge of the Civic Center area and provides direct access to the front entrance of the Hall of Justice and Fire Department buildings. It is also the western edge of the site proposed for the Public Safety Building.
- *Allston Way* is a two-lane east-west roadway which serves as one of two east/west access streets to the existing Hall of Justice and Fire Administration building. A signal is located at the intersection of Allston and Martin Luther King Jr. Way.
- *Addison Street* is the other east-west roadway, serving the existing Hall of Justice and Fire Administration Buildings, and is at the northern edge of the Public Safety Building site. Between Martin Luther King

Jr. Way and McKinley Street, Addison serves residential uses on the north side of the street and City parking on the south side. Further to the west, Addison becomes solely a residential serving street. At Martin Luther King Way, right turns only are permitted from Addison onto this four lane arterial.

- *Center Street* terminates at Martin Luther King Jr. Way and provides an important pedestrian link through the Civic Center area, connecting the existing Civic Center Building with the Hall of Justice, Fire Administration Buildings and other civic functions located on the west side of Martin Luther King Jr. Way. Center Street is also the major transit connection to the Civic Center area, with BART located at Shattuck and associated shuttle services and AC Transit stops located in the vicinity of the BART station.

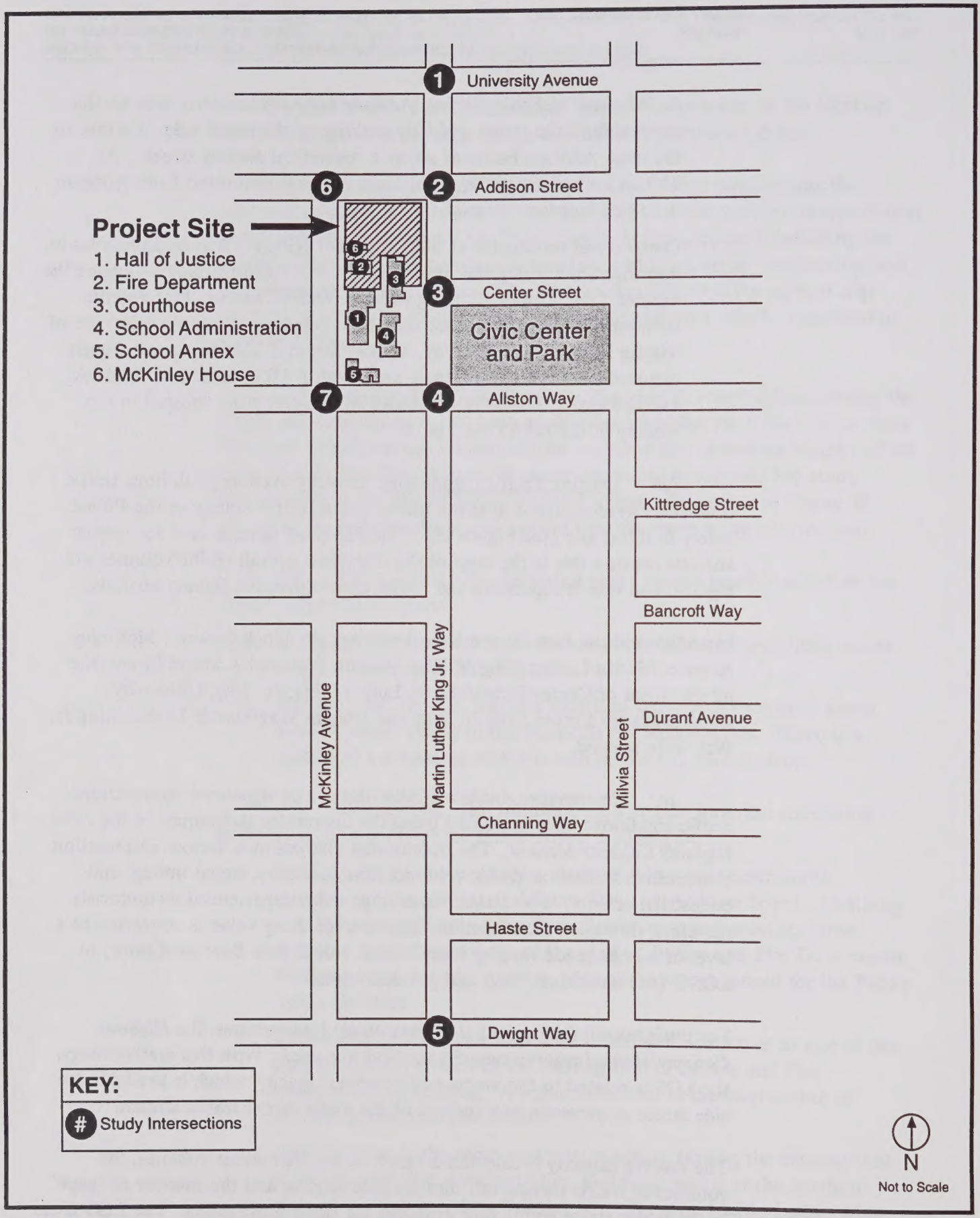
(2) Existing Traffic Conditions. Existing evening peak hour traffic conditions were analyzed at seven intersections in the vicinity of the Public Safety Building site (see Figure 16). The PM peak hour is used for impact analysis because this is the hour of the day when overall traffic volumes are highest, and thus it represents the "worst case" for traffic impact analysis.

In addition to the four intersections bounding the block between McKinley Avenue, Martin Luther King Jr. Way, Allston Way and Addison Street, the intersections of Center Street/Martin Luther King, Jr. Way, University Avenue/Martin Luther King Jr. Way and Dwight Way/Martin Luther King Jr. Way were studied.

(a) Intersection Analysis Methodology. For signalized intersections, traffic conditions were evaluated using the operations techniques of the *1994 Highway Capacity Manual*. The operational analysis uses various intersection characteristics (such as traffic volumes, lane geometry, signal timing, and pedestrian activity) to estimate the average delay experienced by motorists travelling through an intersection. This average delay value is converted to a level of service grade ranging from LOS A (ideal, free flow conditions) to LOS F (oversaturated, "stop and go" operations).

For unsignalized (side street stop-controlled) intersections, the *Highway Capacity Manual* reserve capacity method was used. With this methodology, the LOS is related to the amount of "reserve capacity" which is available for side street movements into and out of the major street traffic stream.

The reserve capacity is calculated based on the side street volumes, the volumes of traffic turning left into the side streets, and the number of "gaps" in the major street traffic flow available for these movements. The LOS given



Source: Fehr & Peers Associates, Inc.

BERKELEY CIVIC CENTER

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FIGURE 16
PROJECT SITE AND
STUDY INTERSECTIONS

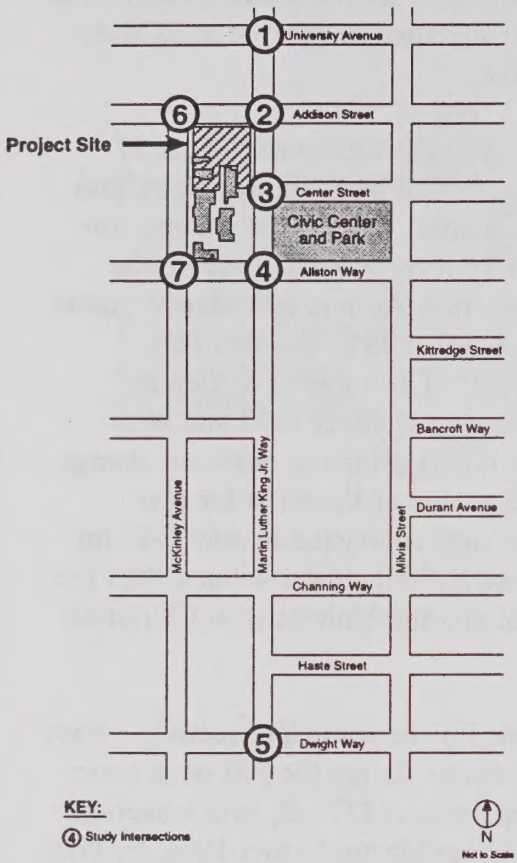
is for the worst movement (usually a left turn to or from the side street). The through movements on the major streets are assumed to operate at LOS A, because they are not controlled by a stop sign.

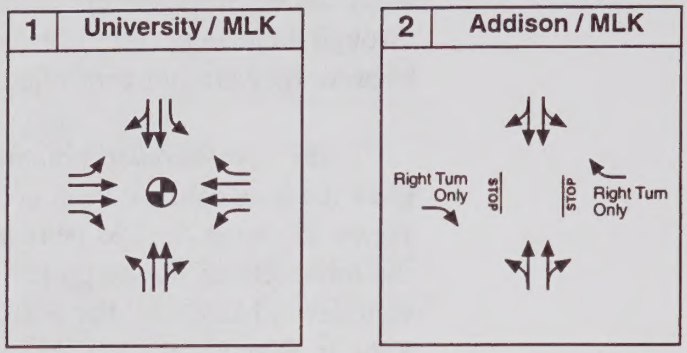
(b) Intersection Volumes and Peak Hour Service Levels. Figure 17 gives the lane configuration and control type for the study intersections, and Figure 18 shows the PM peak hour traffic volumes. The traffic volumes for the intersections on the project site block were recorded in July 1995; the volumes at Martin Luther King Jr. Way/University Avenue and Martin Luther King Jr. Way/Dwight Way were counted in October 1993 as part of the Berkeley Citywide Traffic Model development.[4] The volumes at Center/ Martin Luther King, Jr. Way were last counted in October 1990 and were therefore proportionately increased for this report using the observed change at adjacent intersections over the 1990-1995 period as the basis for this increase. It should be noted that the four counts conducted in July 1995 for this EIR reflect summer conditions which are typically lower-volume than the rest of the year, when Berkeley High School and the University of California are in session.

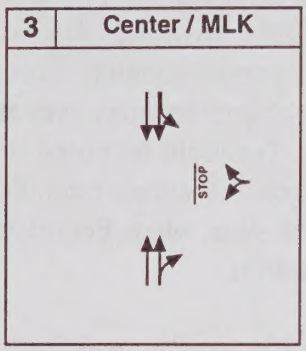
Table 9 lists the PM peak hour service levels for the study intersections. Four of the six intersection operate at LOS C or better during the PM peak hour. Dwight Way/Martin Luther King Jr. Way operates at LOS D, with a average delay to drivers of 31 seconds, and Center Street/Martin Luther King, Jr. Way operates at a calculated LOS F, with almost three minutes of calculated driver delay for the left turn. Field observations indicate that, while delays for this movement are not always as high as three minutes, the LOS is clearly F for the left turn from Center Street to Martin Luther King, Jr. Way southbound. This movement is hazardous during peak periods, when traffic gaps are few on Martin Luther King, Jr. Way. Based on peak hour volumes (minor street approach volume of 211 vehicles per hour), a signal is currently warranted for the intersection of Center Street/Martin Luther King Jr. Way.

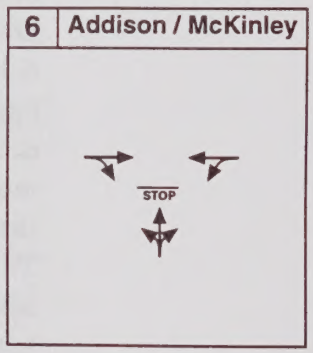
(3) Parking Conditions. In a two-block vicinity around the Public Safety Building project, on-street parking consists of: parking meters on the east side of McKinley and on a portion of Addison Street west of Martin Luther King Jr. Way; Residential Permit Program two-hour parking on the rest of McKinley and the residential streets to the north, south and west; and 30-minute, one-hour and two-hour meters in the Civic Center Park area to the east (Martin Luther King Jr. Way, Allston Street, Center Street, and Addison Street.) Off-street public parking garages are located two and a half blocks away, on Center Street between Milvia Street and Shattuck Avenue. These

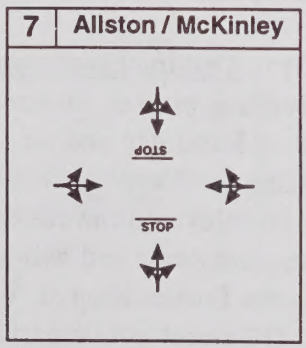
[4] Refer to Appendix D for the 1995 intersection count data.

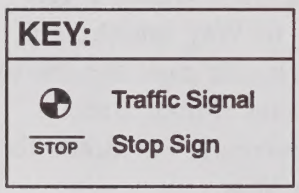












Source: Fehr & Peers Associates, Inc.

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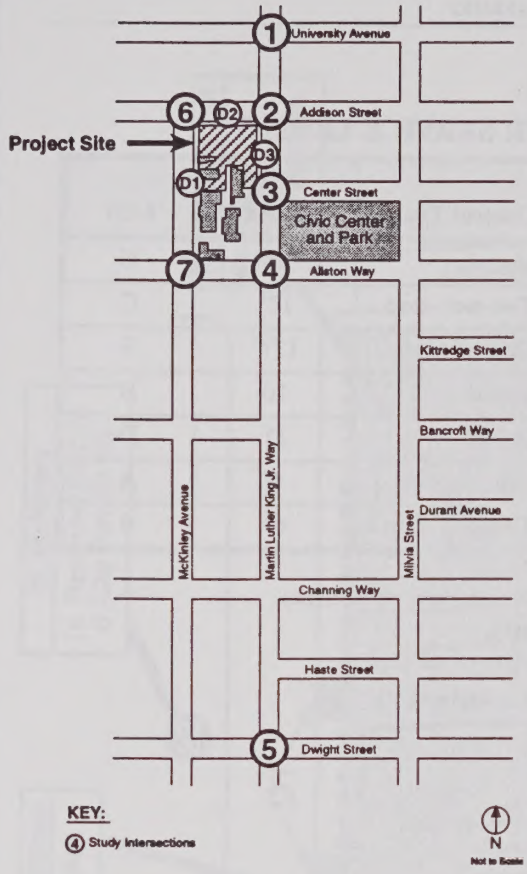
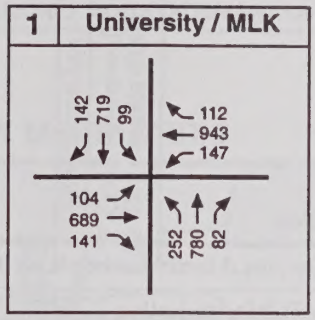
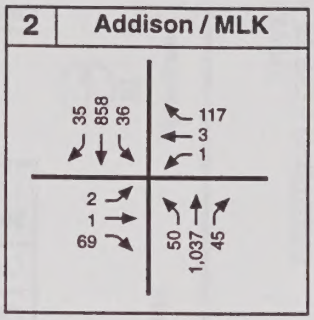
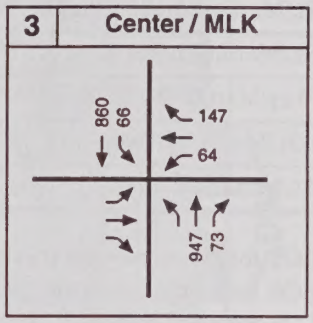
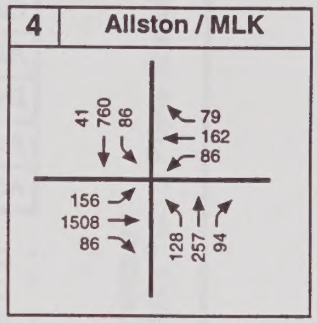
FIGURE 17
INTERSECTION LANE CONFIGURATION

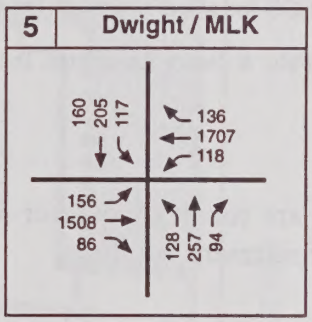


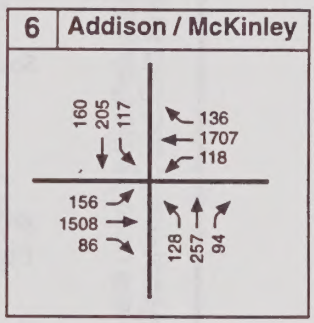


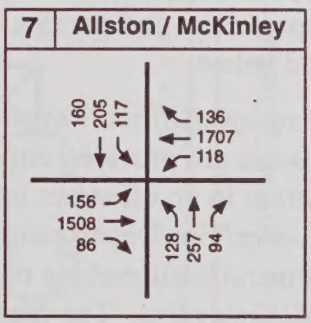


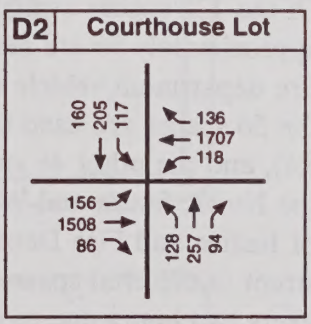


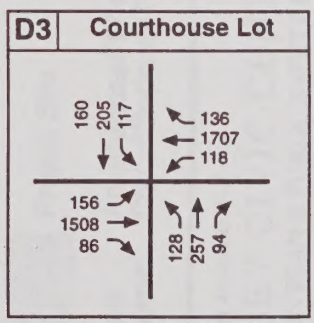












Sources:

Intersections 1, 5:
Berkeley Citywide Traffic Model Study, counts conducted in October 1993.

Intersections 2, 4, 6, 7, D1:
Counts conducted in July 1995 for the Public Safety Building EIR Transportation Impact Study.

Intersection 3:
Counts conducted in April 1992 for the YMCA EIR, increased based on recent counts at Intersections 2,4, and at Milvia/Center.

Intersections D2, D3:
Counts conducted July 1996 for Public Safety Building EIR Transportation Impact Study.

PM Peak Hour varies between 4:45-5:45 and 5:00-6:00 at the study intersections.

Source: Fehr & Peers Associates, Inc.

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FIGURE 18
EXISTING TRAFFIC VOLUMES
PM PEAK HOUR

Table 9
EXISTING PM PEAK HOUR SERVICE LEVELS

Intersection	Control Type	Delay (Seconds)	LOS
University Ave./Martin Luther King Jr. Way	Signal	18	C
Addison St./Martin Luther King Jr. Way	Two-way stop	12[a]	C
Center St./Martin Luther King, Jr. Way	One-way stop	177[b]	F
Allston St./Martin Luther King Jr. Way	Signal	10	B
Dwight Way/Martin Luther King Jr. Way	Signal	31	D
Addison St./McKinley Ave.	One-way stop	4[c]	A
Allston St./McKinley Ave.	Two-way stop	6[d]	B

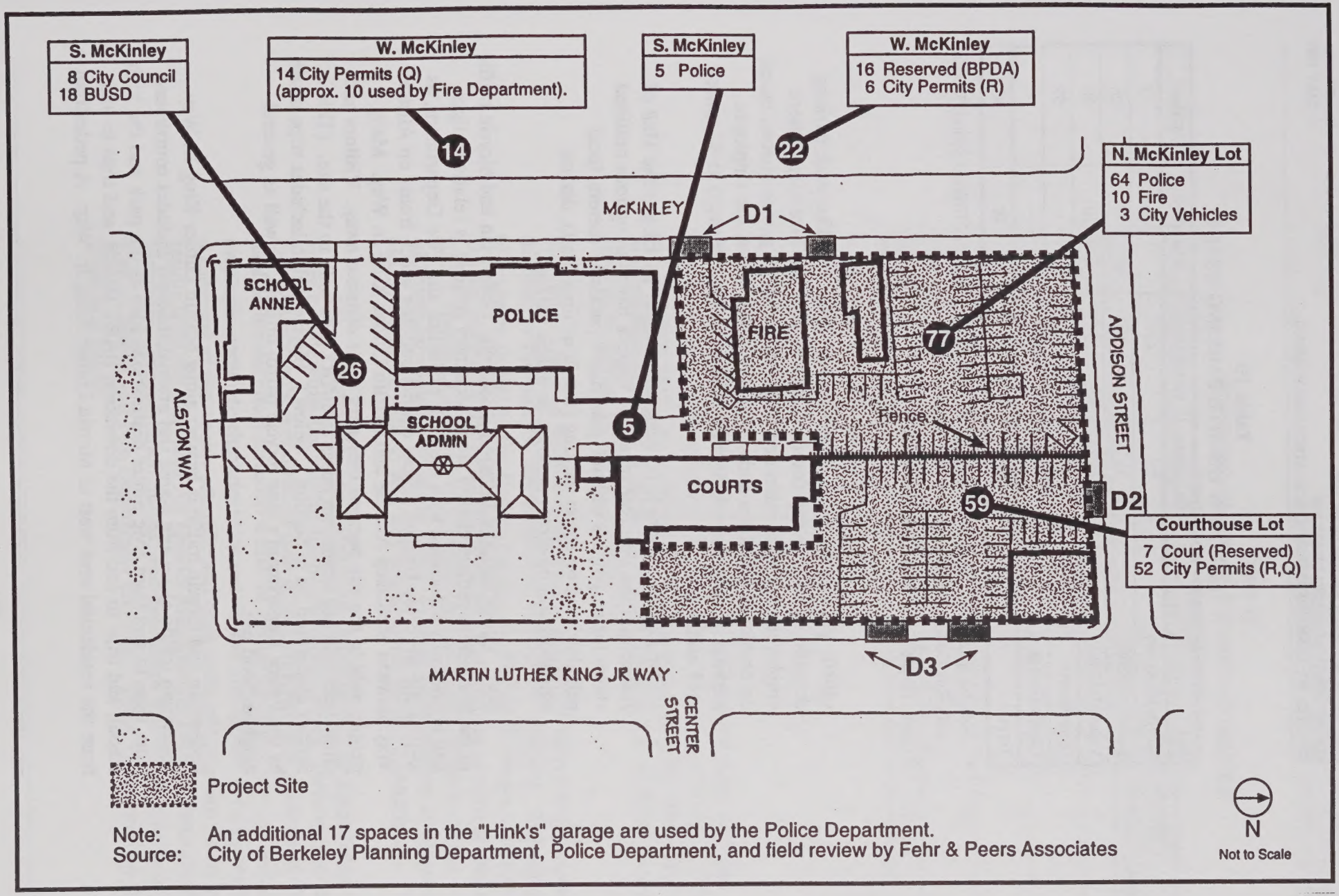
[a] Delay/LOS for worst movement (eastbound and westbound right turns).
[b] Delay/LOS for worst movement (westbound left turn).
[c] Delay/LOS for worst approach (northbound left-right).
[d] Delay/LOS for worst approach (southbound left-through-right).

Source: Fehr & Peers Associates, Inc., 1996.

garages are roughly a quarter-mile walk from the current Hall of Justice and Fire Department buildings.

Parking provided for employees and official vehicles at the Hall of Justice and Fire Department, and parking options for visitors to these buildings are described below.

- *Employee/Official Vehicle Parking*. A total of 122 off-street parking spaces are provided either on the project site block, across McKinley Street in an off-street lot, or at the "Hink's" garage for Hall of Justice/Fire Department employees and vehicle storage. Figure 19 illustrates all parking on the project site block, as well as the west McKinley lots. The parking space allocations are as shown in Table 10. Of the 122 spaces available to the Police and Fire Departments, official approximately 56 are reserved or used by employees, with police and fire department vehicle storage utilizing the rest of the spaces. Ten of the 56 spaces are used by Fire Department employees (West McKinley lot), and the other 46 spaces are Police Department spaces located in the North, South and West McKinley lots. The remainder of the Hall of Justice and Fire Department staff who drive have to park on the street in metered spaces, in the local neighborhoods (moving their cars every two hours due to the RPP limits), in more distant neighborhoods to avoid RPP limits, or in the public parking garages. The available



Source: Fehr & Peers Associates, Inc.

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ENVIRONMENTAL IMPACT REPORT

FIGURE 19
EXISTING SITE PLAN
AND PARKING ALLOCATION

Table 10
EXISTING ON-SITE PARKING USAGE

Lot	Total Spaces	Police Dept.	Fire Dept.	Other[a]
North McKinley	77	64	10	3
South McKinley	31	5	--	26
West McKinley	36	16	10	10
"Courthouse"	59	--	--	59
Hink's Garage	17	17	--	--
Total	**220**	**102**	**20**	**98**

[a] Includes spaces for City staff permit holders ("R" and "Q"), Berkeley Unified School District staff, City Council members, and official City vehicles.

Source: Fehr & Peers Associates, Inc., 1996.

off-site parking supply is summarized in Table 11. The peak parking demand during the day due to Hall of Justice and Fire Department employee parking is estimated at 143 on-street or garage spaces, based on employee schedules and survey responses. Thus, the employee parking demand not met by off-street spaces is estimated at 87 spaces (143 minus 56).

- *Visitor Parking*. There is no designated visitor parking at the Hall of Justice and the Fire Department. Visitors have the options outlined above for employees without guaranteed parking—meters, local neighborhood on-street parking (two-hour time limit), distant neighborhood on-street parking, or public garages.

(4) Pedestrian and Bicycle Circulation. Pedestrian and bicycle traffic in the immediate project vicinity along McKinley Avenue is relatively light, and is primarily associated with the Hall of Justice and Fire Department, as well as the Berkeley Unified School district building which fronts on Allston Way between McKinley Avenue and Martin Luther King Jr. Way. Many people walk to the site because they park some distance away. Visitors and employees who use downtown buses or BART also walk to the site. (This is further elaborated on in Section 5, below.) Bicycle traffic includes trips made by the Police Department's nine bicycle patrol officers, as well as general neighborhood use.

Pedestrian and bicycle traffic is heavier along Martin Luther King Jr. Way. Pedestrian traffic along and across this arterial roadway includes courthouse trips, trips to and from civic center destinations such as the park and the high school, and trips to and from the downtown BART station, and trips to and from the residential area west of Martin Luther King, Jr. Way. A pedestrian

Table 11
EXISTING ON-STREET PARKING SUPPLY
PROJECT SITE BLOCK

Block	Number of Spaces			
	2-Hour	1-Hour	30 Min.	Disabled
McKinley between Addison and Allston	19	11	6	1
Martin Luther King Jr. Way between Addison and Allston (west side only)		6	3	
Addison between Martin Luther King Jr. Way and McKinley	5	2	1	
Allston between Martin Luther King Jr. Way and McKinley	5	5	4	
Total	**29**	**24**	**14**	**1**

Source: Fehr & Peers Associates, Inc., 1996.

count performed in 1990 at Center Street/Martin Luther King, Jr. Way showed 97 peak hour pedestrian crossings of Martin Luther King, Jr. Way, and 39 crossings of Center Street. Crossings at the adjacent intersections of Addison/Martin Luther King, Jr. and Allston/Martin Luther King, Jr. are likely to be similar in volume to these.

Bicycles are used in the downtown area primarily for commuting purposes (to/from or through the downtown, and to/from the campus). The designated bike routes closest to the Hall of Justice and Fire Department buildings include Milvia, Center between Milvia and Shattuck (to provide access to the BART station), Channing Way, Hearst Avenue, and California Street. Although no counts were made, there is a significant amount of observed bicycle traffic on Allston Way and some bicycle traffic on Addison.

(5) Existing Hall of Justice/Fire Department Trip Generation. In order to determine the existing traffic generation of the Berkeley Police and Fire Departments, a number of data collection tasks were performed. The data collection effort included a Hall of Justice employee survey summarizing employee commute characteristics and on-site and off-site parking availability; a summary of the weekly schedule and daily shifts of the police patrol teams; results from the Bay Area Air Quality Management District (BAAQMD) 1994 Employee Transportation Survey; and pedestrian and vehicle counts at the Hall of Justice and Fire Department buildings. Table 12 summarizes the discussion below.

Table 12
EXISTING PEAK HOUR TRIP GENERATION
Police and Fire Departments
5:00 - 6:00 PM

Item	Amount	Source
Total Employment	291	Police and Fire Departments
Estimated Person-Trips (employees only)	135	Work schedule, Police and Fire Departments
Vehicle—Employee Ratio (VER)[a]	0.90	BAAQMD 1994 Employee Transportation Survey, Police and Fire Departments
Estimated Vehicle Trips (employees only)	122	= VER x employee person trips
On-site Person Trips (includes all vehicle and pedestrian trips, employees and visitors)	177	Fehr & Peers Associate, on-site traffic count
On-site Vehicle Trips (employees only—no visitor parking on-site)	34	Fehr & Peers Associates, on-site traffic count
On-site Pedestrian Trips (employees and visitors)	143	Fehr & Peers Associates, on-site traffic count
Estimated Off-site Vehicle Trips (employees only)	88	= All employee vehicle trips (122)—on-site vehicle trips (34)
Estimated On-site Pedestrian Trips (visitors only)	55	= All pedestrian trips (143)—all employee pedestrian trips (88)
Estimated Off-site Vehicle Trips (visitors only)	50	= VER x visitor pedestrian trips
Total On-site Vehicle Trips	34	Fehr & Peers Associates, on-site traffic count
Total Off-site Vehicle Trips	138	= Off site employee trips (88) + Off-site visitor trips (50)

[a] VER = number of vehicles per employee.

Source: Fehr & Peers Associates, Inc., 1996.

(a) Estimated Trip Generation Using Employment Information. The police department employee survey and the patrol schedule show that on a typical work day, the administrative/support staff and police chiefs (112 total employees) work from 8 AM to 5 PM. The 156 patrol officers, accounting for the remainder of the police department staff, work on a 24-hour shift schedule with the following shifts:

- 6:30 AM to 4:30 PM
- 11:00 AM to 9:00 PM
- 4:00 PM to 2:00 AM
- 8:45 PM to 6:45 AM[5]

The workday shift for the fire department staff (23 total employees) is from 8:00 AM to 5:00 PM.

A review of employee work hours indicates that afternoon traffic generation would be highest during the 5:00 to 6:00 PM hour, which is also the peak hour for street traffic. Traffic generated during this period includes all Hall of Justice administrative employees leaving work (112 trips), and all Fire Department employees leaving work (23 trips), for a total of 135 trips. This exceeds the estimated traffic generation for the 4:00 to 5:00 PM hour, which would include morning shift patrol officers leaving the Hall of Justice, and evening patrol officers arriving to start work. The PM peak hour employee person-trip generation for the 4:00 to 5:00 PM hour is estimated at 53 trips, which assumes each patrol officer beginning or ending a shift between 4:00 and 5:00 PM generates two trips, one in-bound and one out-bound.

The Bay Area Air Quality Management District (BAAQMD) 1994 Employee Transportation Survey results show that the combined Vehicle to Employee Ratio (VER) for the Hall of Justice and Fire Department is 0.9. Applying this ratio to the person-trip estimates from the Police and Fire Departments gives a vehicle-trip generation of 135 x 0.9 = 122 trips. Many of these vehicle trips would not be observed at the buildings' driveways/gates because many employees park off-site.

(b) Vehicle and Pedestrian Survey. To supplement the above estimates, and to observe actual vehicle and pedestrian trips at the Hall of Justice and Fire Department, vehicle and pedestrian counts were conducted at the vehicle entrances and doorways to the two buildings. The counts were conducted on Wednesday, July 26, 1995 during the afternoon peak period, 4:00 to 6:00 PM. (Refer to Appendix D for survey diagram and tabulated results.) The survey showed that the peak hour for vehicle traffic to and from

[5] Refer to Appendix D for survey and schedule data.

the buildings was 4:00 to 5:00 PM, with 49 vehicles entering or exiting. For pedestrian movements, the peak hour was 4:45 to 5:45 PM, with 185 pedestrians entering or exiting the two buildings. These counts include all visitors and employees, but do not differentiate between the two. Between 5:00 to 6:00 PM, the vehicle count was 34 and the pedestrian count was 177.

(c) Trip Generation: Summary. Based on employment levels and employee survey data, the *peak hour employee vehicle trip generation* for the Hall of Justice and Fire Department combined is estimated at 122 vehicle trips, for 5:00 to 6:00 PM hour. Many of these vehicle trips are dispersed throughout the downtown area and adjacent neighborhoods, based on parking availability; this dispersion would not be expected to change with the relocation of the police and fire departments to the new building site. This estimate does not include visitor trips. (Because all visitors who drive must park off-site, and the Public Safety Building plan proposes no increase in use, the level of visitor trip generation and parking patterns are not expected to change.)

The *total on-site peak hour vehicle trip generation* was observed in an on-site survey to be 49 vehicle trips during the hour of 4:00 to 5:00 PM. For the street peak hour, 5:00 to 6:00 PM, the number of vehicle trips generated on-site was 34. These volumes include only employee trips, because no visitor parking is provided on-site.
The on-site survey showed that *on-site pedestrian trip generation* peaked at 185 trips during the hour 4:45 to 5:45 PM. For the street peak hour, 5:00 to 6:00 PM, the number of pedestrian trips generated on site was 177.

2. Impacts and Mitigation Measures

The following discussion addresses first the impacts of the *Civic Center Urban Design Plan* (section a.), and then the impacts of the Public Safety Building (section b.)

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan. The proposed *Civic Center Urban Design Plan* would have a significant impact on transportation, circulation and/or parking if it would:

- Cause an inconsistency with the *Berkeley Downtown Plan* policies regarding transportation, circulation and/or parking.
- Promote unsafe or congested conditions due to the size or placement of new buildings or uses.

Civic Center Urban Design Plan

Impact G-CC-1: Implementation of the projects identified in the *Civic Center Urban Design Plan* will increase parking demand; the plan also identifies locations for the provision of an estimated 467 additional parking spaces. (S)

The *Downtown Plan* discourages long-term public and private parking in the core area. It recommends that most long-term facilities generally be located at more remote locations and linked to downtown by a shuttle service or AC Transit. It establishes the requirement of 1.5 parking spaces for each 1,000 square feet of gross floor area (GFA) of new non-residential use. It also states that under no circumstances should the number of spaces provided exceed 2 spaces per 1,000 square feet of GFA. These standards have not been adopted in the Zoning Ordinance, but are used as guidelines when reviewing large downtown projects.

The *Urban Design Plan's* Courthouse, Library and Public Safety Building expansions total 205,700 square feet. Under the Downtown Plan standard of 1.5 spaces per 1,000 square feet, this amount of new building area could require 309 new spaces at a rate of 1.5 spaces per 1,000 square feet. Of those 309 spaces, 87 spaces are expected to remain at the Public Safety Building site, leaving a net new requirement for 222 spaces.

The *Urban Design Plan* identifies two locations for public parking expansion which could accommodate an estimated 467 additional parking spaces. These include 200 additional spaces in an expansion of the Addison Street garage, and 267 additional spaces provided by decking the Oxford Street/Allston Way lot.

The new spaces could serve general downtown parking demand, as well as the parking demand generated by some of the civic uses to be located in the Civic Center area under the Urban Design Plan. Overall, downtown parking is approaching capacity at the weekday mid-day (see *Civic Center Urban Design Plan*—Setting, Section 2). These spaces could also help off-set parking losses incurred in the development of the Public Safety Building (55 spaces lost to City permit holders and City vehicle storage), although the development of this parking garage is expected to lag well behind the Public Safety Building construction.

Civic Center Urban Design Plan

The new parking facilities could also offset some of the parking required by the new County Courthouse on Center Street, which is estimated to require 348 spaces[6] to provide for peak Courthouse parking demand. Some or all of the Courthouse parking may be provided on or near the new Courthouse site; however, this possibility is not addressed in this EIR. The County Courthouse currently provides no off-street parking other than seven spaces for judges. borhoods. Courthouse employees who drive park either in downtown lots or on the street in metered spaces or in the residential neighborhoods. Jurors are given vouchers allowing them to park in metered spaces or in public garages.

Because the *Civic Center Urban Design Plan* does not assign proposed new parking spaces to specific projects, it is not possible to strictly account for parking demand for particular buildings. The *CCUDP* does identify potential locations for new parking that would exceed the number of spaces required for the development that could occur under the plan. Because the *CCUDP* does not identify an independent funding source for the new parking development (an in-lieu fee funding source is identified in the Downtown Plan but has not yet been implemented), development of new parking spaces is likely to occur on a different schedule from the development of new civic buildings. Accordingly, parking needs and impacts will need to be evaluated on a case by case basis for each Civic Center project. The parking demands of the Public Safety Building are evaluated in this document; the demands of the Courthouse are being evaluated in a separate EIR.

The actual use of the downtown's off-street parking supply will depend on a number of factors, including actual demand, parking cost, and convenience. Prior to moving forward with the Allston Way/Oxford Street parking facility planning, or any other parking site other than the Addison Street garage expansion, the City should consider conducting a parking demand study, including garage and lot occupancy counts, to determine the need for additional parking in the downtown area. Such a study would be especially useful after the new Courthouse is built, to determine the actual parking supply and demand characteristics with one of the major *CCUDP* projects, and its associated new parking, in place.

[6] *Courthouse ADEIR Transportation* Chapter, prepared by Fehr & Peers Associates, August 1996.

Civic Center Urban Design Plan

Mitigation Measure G-CC-1a: The City shall conduct a parking demand study prior to, or in conjunction with, advance planning for a new parking facility at the Oxford Street/Allston Way site. This study would provide the data necessary to determine whether additional parking is needed, and whether conditions have changed relative to those in the 1989 *Downtown Plan* and the 1992 Parking Conditions Update.

Mitigation Measure G-CC-1(b): The City shall require a review of the projected parking demand and code-required supply of all new development projects in the Urban Design Plan area. (LTS)

Impact G-CC-2: The new uses envisioned by the *Civic Center Urban Design Plan* will generate a net increase of 69 additional PM peak hour trips. These trips will not significantly worsen congestion in the downtown area. (LTS)

Table 13 summarizes the changes in trip generation resulting from the projects specifically outlined in the *Civic Center Urban Design Plan*: the Library expansion, the new Public Safety Building, the new County Courthouse, and a small expansion of the Martin Luther King Jr. Civic Center Building (Administration Building). Other elements of the plan, such as improvements on the Berkeley High School campus and to the Veteran's Building, are not likely to have a significant impact on trip generation. The net trip generation calculated for the plan is 69 additional PM peak hour trips, generated by the new courthouse (55 new trips) and the Library expansion (14 new trips). The Public Safety Building generates no net new trips because it relocates existing uses in the Police and Fire Departments. The City Administration Building addition is not expected to generate new trips because no additional staff is planned; rather the addition would be occupied by currently impacted staff and office materials.

The *Berkeley Downtown Plan,* with which the *Civic Center Urban Design Plan* is meant to be consistent, showed land uses resulting in 246 PM peak hour trips for the Base Plan alternative.[7] Thus, the projects outlined in the *Civic Center Urban Design Plan* generate approximately 28 percent of the total trips projected by the *Berkeley Downtown Plan.*

[7] *DEIR for the Berkeley Downtown Plan.* Prepared for the City of Berkeley by Mundie & Associates, March 1989.

Civic Center
Urban Design
Plan

Table 13
CIVIC CENTER URBAN DESIGN PLAN
TRIP GENERATION

	Existing				Proposed				
Location	**Use**	**Size**	**Units**	**PM Trips**	**Use**	**Size**	**Units**	**PM Trips**	**Net PM Trips**
Kittredge/Shattuck	Library	50	ksf	10	Library	120	ksf	24	14
McKinley	Police/Fire Depts	--	--	174	--	--	--	--	-174
Addison/Martin Luther King Jr. Way	--	--	--	--	Public Safety Building	65	ksf	174	174
Martin Luther King Jr. Way	County Courthouse	30	ksf	39	--	--	--	--	-39
Center	--	--	--	--	County Courthouse	70.7	ksf	94	94
Milvia	Administration Building	100	ksf	--	Addition	20	ksf	0	0
Total									69

Source: Fehr & Peers Associates, Inc., 1996.

Civic Center Urban Design Plan

LOS D was established as the standard performance criterion in the *Downtown Plan*. According to the 1989 Traffic Impact Analysis of the *Downtown Plan,* all intersections in the vicinity of the Civic Center operated with an overall Level of Service of D or better. Service level calculations for the Public Safety Building traffic analysis (presented after this analysis) show that, with one exception, the key intersections along Martin Luther King Jr. Way are not expected to fall below LOS D with traffic generated by projects allowed under the *Urban Design Plan.* (The exception is Center/Martin Luther King, Jr., which already operates at LOS F for the left turn from Center Street to Martin Luther King, Jr. Way.)

The analysis of the University Avenue/Shattuck Avenue intersection recently performed for the *Haas Pavilion EIR*[8] shows that conditions are already at LOS E/F at that intersection. This and other intersections along Shattuck Avenue could experience increased delays with the development contained in the *Urban Design Plan.* However, relative to the service levels calculated in the *Berkeley Downtown Plan,* the small increase in trip generation from the *Urban Design Plan* (69 trips) would not cause congestion to increase significantly, because the distribution of trips to the various downtown gateways would result in very small traffic increases at any given intersection. For this reason, this impact has been identified as less than significant, and no mitigation measures are proposed.

Impact G-CC-3: Implementation of the projects identified in the *Civic Center Urban Design Plan* could encourage auto use and discourage transit use. (S)

The *Civic Center Urban Design Plan* calls for more clearly identified pedestrian corridors connecting BART and the bus stops along Shattuck Avenue to the Civic Center. The City also has also persuaded BART to change the name of the Berkeley station to "Berkeley Downtown/Civic Center", and is asking the County Court to send transit information and passes with all jury notices. These measures could lead to greater transit use by visitors to the Civic Center, though changes will likely be modest.

The *Downtown Plan* contains strong language regarding transit use, calling for encouragement of transit as the primary mode of travel in the downtown. *Downtown Plan* policies to this end include improving the accessibility to transit, improving bus operations in the Downtown and improving transit

[8] University of California, Berkeley, Planning, Design and Construction. *Haas Pavilion and Edwards Field Renovation Project Draft Environmental Impact Report.* SCH # 96022086. April 22, 1996.

facilities. The *Urban Design Plan* components noted above will help further these *Downtown Plan* policies.

The *Urban Design Plan* calls for the expansion of the existing parking supply; the numbers and locations of recommended new parking are consistent with the *Downtown Plan*. However, to the degree that long term parking is more available, it could make driving a more attractive option than taking transit, especially for commuters. This encouragement of auto use and potential negative impact on transit could be largely addressed through the use of pricing techniques which increase the cost of long-term parking (the longer a car is parked, the more it costs), such as the policies currently in force in most of the public parking facilities in San Francisco.

Mitigation Measure G-CC-3a: As part of the parking demand study required under Mitigation Measure G-CC-1, the City shall also evaluate the use of parking facilities between long term and short term users and consider the efficacy and practicality of establishing or requiring pricing mechanisms which discourage long term parking.

Mitigation Measure G-CC-3b: The City shall continue to encourage the use of AC Transit by advocating for the maintenance of minimum service standards in Berkeley, public education, and maintenance of safe and secure downtown transit stops. (LTS)

Public Safety Building

b. Public Safety Building. The Public Safety Building would have a significant impact on transportation, circulation, and parking if it would:

- Cause an intersection currently operating at LOS D or worse to increase average vehicle delay by five seconds or more.
- Result in any increased demand for Residential Permit Parking spaces by non-residents.
- Result in projected parking demand exceeding available supply in the downtown area.
- Cause or exacerbate an unsafe condition for pedestrians or bicyclists.
- Increase transit demand above current capacity.
- Reduce transit access for employees or visitors.

Impact G-PSB-1: The construction of the Public Safety Building will cause a net loss of an estimated 61 parking spaces. The Police/Fire Departments will gain one space; City staff permit holders will lose 52 spaces; County Court judges will lose seven spaces; and official City vehicle storage spaces will be reduced by three. (S)

Public Safety Building

The project site currently houses two parking lots. The North McKinley lot, on the northwest corner of the block, provides 77 spaces, of which 74 are used by the Police and Fire Departments and three are used by City vehicles. The "Courthouse" lot, on the northeast corner of the block, provides 59 spaces, of which 52 are City staff permit spaces ("R" and "Q") and seven are reserved spaces for County Court judges. The project would eliminate these two lots and provide an 80-space lot for Police and Fire use only. Parking in the South McKinley lot, which is located behind the existing Hall of Justice and Fire Department buildings, would also be lost (5 spaces).

Table 14 summarizes the proposed parking changes. The project description does not provide for replacement of the City staff permit, official City vehicle and County Court reserved spaces (62 spaces total).

Regarding the 52 lost City permit spaces, the City issues approximately 200 permits and currently provides 106 permit spaces, of which 23 (located behind 2180 Milvia Street) are reserved for the Mayor, Council members and other specific positions. The 52 permit spaces lost thus represent over 60 percent of the 83 spaces available to general permit holders; only 31 spaces would remain for the approximately 170 permit holders. Without replacement parking the current users of these spaces would need to park in public garages or on the street, or switch to an alternative travel mode.

The County Court judge's spaces may be temporarily lost, but are planned to be replaced on a temporary basis either on- or off-site and then permanently replaced at the new Courthouse site, when it is built.

The three vehicle storage spaces would need to be replaced in a garage or lot in the downtown.

Mitigation Measure G-PSB-1: The following measures shall be implemented to mitigate this significant impact:

- The City shall attempt to reduce the impact of the 52 lost City permit parking spaces by securing other off-street parking for permit holders. If all 52 spaces are not replaced, this impact will remain significant after mitigation because additional parking in the RPP areas may occur.
- The City shall locate off-street spaces for official City vehicle storage, to replace the three spaces lost from the North McKinley lot. (SU)

Public Safety Building

Table 14
PARKING SUPPLY CHANGES WITH PROPOSED PROJECT

Lot	User	Existing No. Spaces	Future No. Spaces	Change (#)
North McKinley Lot	Police/Fire Department	74	0	-74
	City vehicles	3	0	-3
South McKinley Lot	Police/Fire Department	5	0	-5
	BUSD Permit Holders	26	26	0
West McKinley Lot	Police/Fire Department	26	26	0
	Permit Holders	10	10	0
Courthouse Lot	Courthouse	7	0	-7
	City permit holders	52	0	-52
Hink's Garage (reserved spaces)	Police Department	17	17	0
New PSB Lot	Police/Fire Department	0	80	80
Total—All Spaces		220	159	-61
Total—Police/Fire		122	123	1
Total—City Permit/City Vehicle Storage		91	36	-55
Total—Courthouse		7	0	-7

Source: Fehr & Peers Associates, Inc., 1996.

<u>Impact G-PSB-2</u>: The relocation of the Police and Fire Departments to the Public Safety Building will result in minor changes in intersection traffic volumes, including reductions at some locations. (LTS)

The Public Safety Building project involves no increase in employment or services above those currently located in the Hall of Justice and Fire Department Administration building. Thus, the PM peak hour trip generation is not expected to change as a result of the project. However, changes to traffic patterns will occur for two reasons: 1) the primary vehicle access point will be relocated from McKinley Avenue to Addison Street, and 2) the project will be built on the site of a City/County permit parking lot, thus displacing vehicles using that lot to other parking locations. No mitigation is required for this impact since it is less than significant. The net change in trip generation and trip distribution that would result from these changes are described below.

Public Safety Building

(1) Police and Fire Departments Trip Generation. Table 15, from the Public Safety Building setting, shows that the employee vehicle trip generation for the Police and Fire Departments consists of 34 on-site trips and an estimated 88 off-site trips (off-site trips are generated from an off-site parking space). The visitor vehicle trip generation is estimated at 50 trips, all off-site (because no visitor parking is provided on-site).

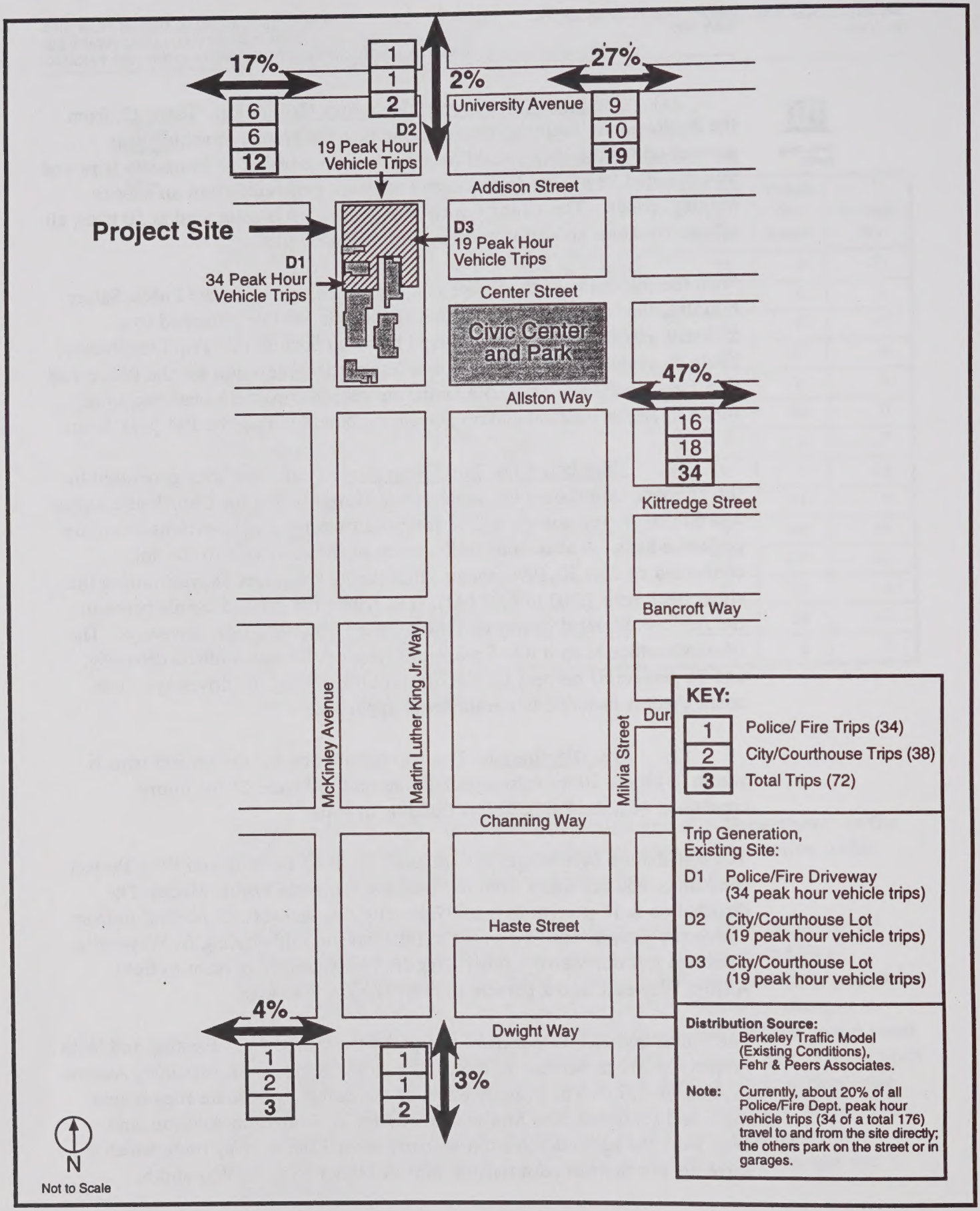
With the relocation of the Police and Fire Departments to the Public Safety Building, the trip generation will not change, but will be relocated to a different access driveway as described below in Section (3), Trip Distribution. Table 16 summarizes the existing and future trip generation for the Police and Fire Departments. The on-site employee vehicle trips were observed to be split 47 percent inbound and 53 percent outbound during the PM peak hour.

(2) Courthouse Lot Trip Generation. Peak hour trips generated by the 59-space Courthouse lot, which houses seven spaces for Courthouse judges and 52 City permit spaces, will be removed from local intersections when the project is built. A peak hour traffic count of the driveways to this lot, conducted on July 30, 1996, showed that the lot generates 38 trips during the street peak hour (5:00 to 6:00 PM). The trips were divided evenly between the Addison Street driveway and the Martin Luther King, Jr. driveways. The inbound/outbound split was 5 percent/95 percent for the Addison driveway, and 16 percent/84 percent for the Martin Luther King, Jr. driveways. The count sheet is included in the technical appendix.

(3) Trip Distribution. The trip distribution for the project trips is shown in Figure 20 for existing conditions and in Figure 21 for future conditions with the Public Safety Building in place.

The distribution percentages are the same for both Existing and With Project conditions, and are taken from the Berkeley Citywide Traffic Model. The distribution is 17 percent to/from University Avenue-west, 27 percent to/from University Avenue-east, 2 percent to/from Martin Luther King Jr. Way-north, 3 percent to/from Martin Luther King Jr. Way-south, 47 percent to/from Allston Way-east, and 2 percent to/from Dwight Way-west.

The Police and Fire Department trip paths are different for Existing and With Project conditions because of the change in site access from McKinley Avenue to Addison Street. The primary effect of the change is to route trips bound south and southeast onto Martin Luther King Jr. Way from Addison, and away from the McKinley-Allston-Martin Luther King Jr. Way route which is currently the shortest path to/from Martin Luther King Jr. Way south.

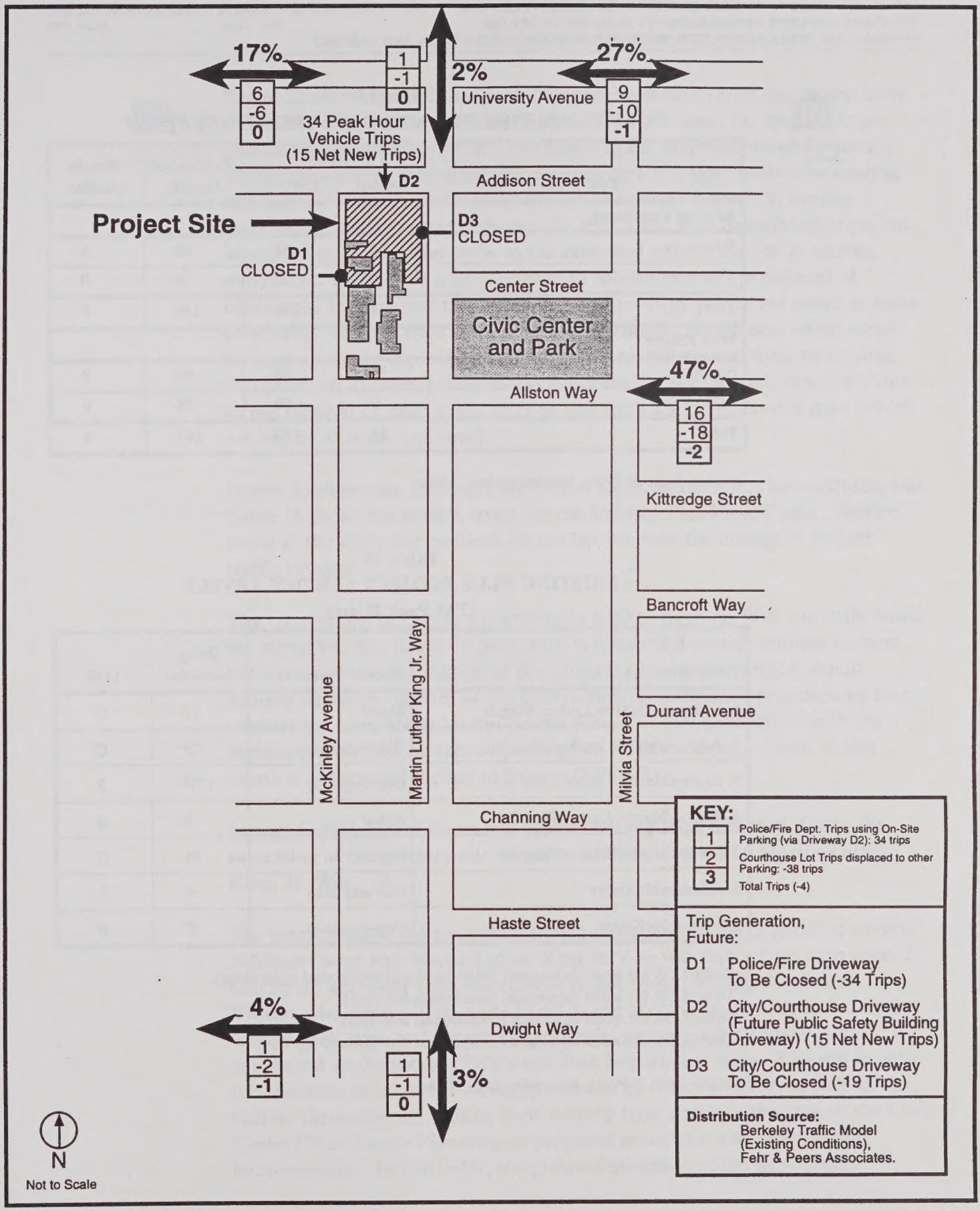


Source: Fehr & Peers Associates, Inc.

BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 20
EXISTING TRIP
DISTRIBUTION



Source: Fehr & Peers Associates, Inc.

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ENVIRONMENTAL IMPACT REPORT

FIGURE 21
FUTURE TRIP DISTRIBUTION
• POLICE/FIRE DEPARTMENT TRIPS
• DISPLACED COURTHOUSE LOT TRIPS

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

480-024

Public Safety Building

Table 15
POLICE AND FIRE DEPARTMENTS TRIP GENERATION

Trip Type	Vehicle		Pedestrian	Bicycle
	On-Site	Off-Site	On-Site	On-Site
Existing Conditions				
Employee	34	88	88	8
Visitor	0	50	58	0
Total	34	140	146	8
With Project				
Employee	34	88	88	8
Visitor	0	50	58	0
Total	**34**	**140**	**146**	**8**

Source: Fehr & Peers Associates, Inc., 1996.

Table 16
EXISTING PLUS PROJECT SERVICE LEVELS
(PM Peak Hour)

Intersection	Control Type	Delay (seconds)	LOS
1. University/Martin Luther King Jr.	Signal	17	C
2. Addison/Martin Luther King Jr.	Two-way stop	12[a]	C
3. Center/Martin Luther King, Jr.	One-way stop	171[b]	F
4. Allston/Martin Luther King Jr.	Signal	9	B
5. Dwight/Martin Luther King Jr.	Signal	31	D
6. Addison/McKinley	One-way stop	4[c]	A
7. Allston/McKinley	Two-way stop	5[d]	B

[a] Delay/LOS for worst movement (eastbound and westbound right turns).
[b] Delay/LOS for worst movement (westbound left turn).
[c] Delay/LOS for worst approach (northbound left-right).
[d] Delay/LOS for worst approach (southbound left-through-right).

Source: Fehr & Peers Associates, Inc., 1996.

Public Safety Building

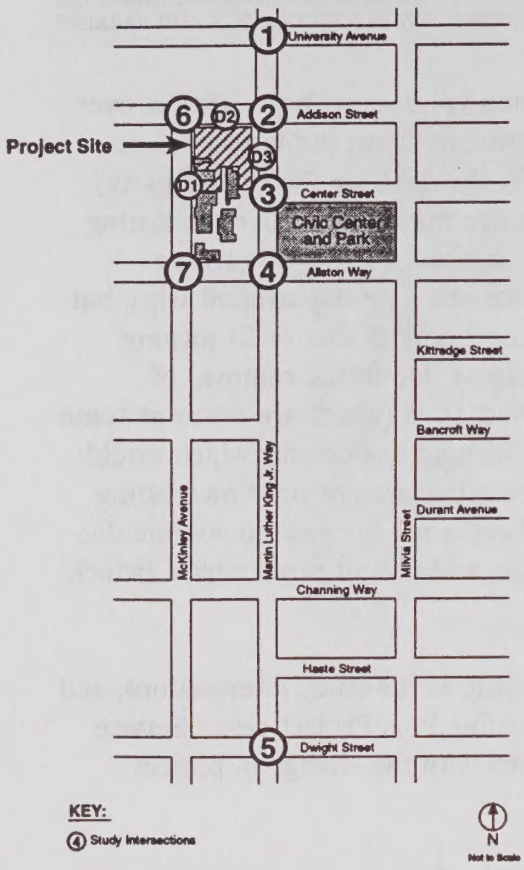
Figure 22 shows the net change in intersection volumes with the project over the course of the PM peak hour. Spread over one hour, the largest single turning movement increase of 12 vehicles (at the Addison Street Driveway) would represent an additional vehicle every five minutes, relative to existing conditions. The negative trips on Figure 22 indicate either: 1) turning movements which are currently used by Police and Fire department trips, but would not be used in the paths to the proposed project site; or 2) turning movements which have a net decrease in volume due to the removal of courthouse lot trips and the addition of project trips (which are lower at some locations). Positive trips indicate either: 1) turning movements which would be used on future trip paths to the project site, but are not used on existing trip paths; or 2) turning movements which have a net increase in volume due to the removal of courthouse lot trips and the addition of project trips (which are higher at some locations).

Figure 23 shows the Existing Plus Project traffic at the study intersections, and Table 16 shows the service levels for the Existing Plus Project case. Service levels at the study intersections do not worsen with the change in project traffic volumes.

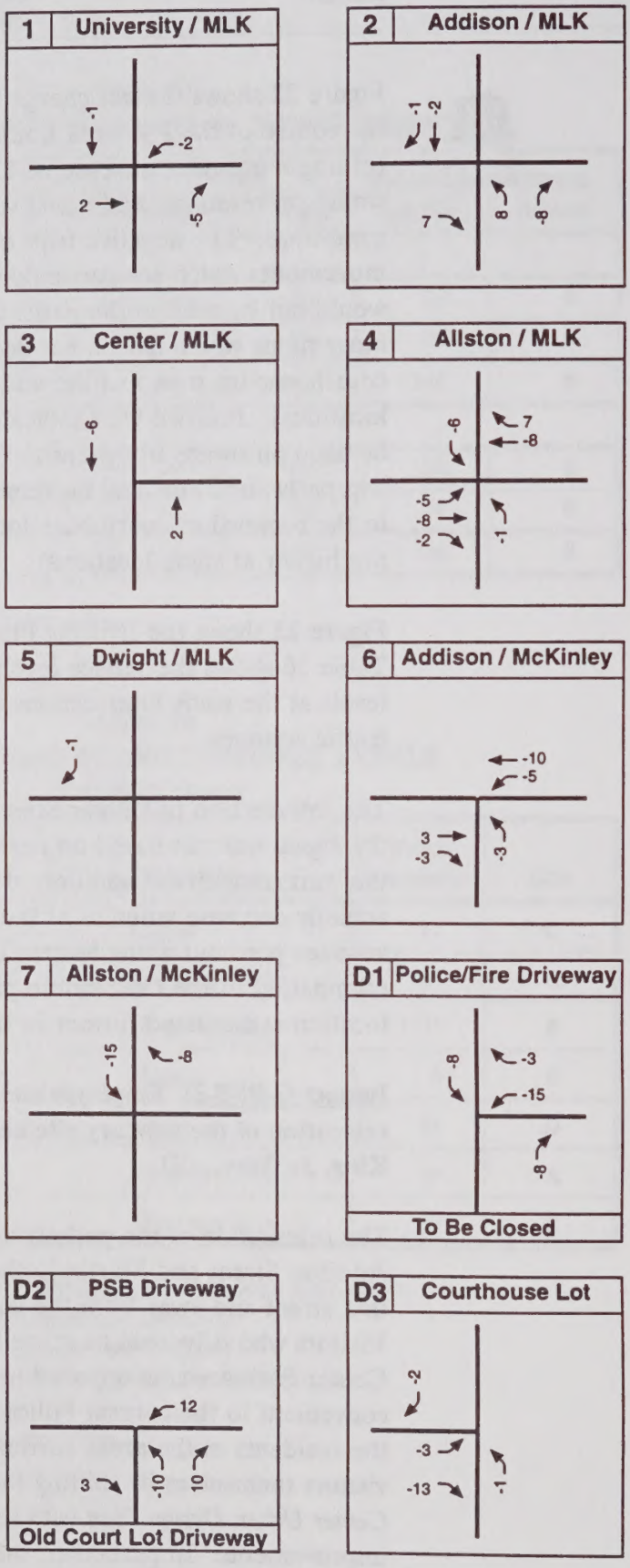
The intersection of Center Street/Martin Luther King, Jr. Way currently meets the signal warrant based on peak hour volumes and would continue to meet the warrant with the addition of the project, although the project would actually decrease volumes at the intersection (an estimated reduction of four vehicles per hour along Martin Luther King, Jr. Way, primarily due to the elimination of the Courthouse parking lot). The need for a signal at this location is discussed further in Impact G-PSB-3.

Impact G-PSB-3: Employee and visitor walking trips will shift due to the relocation of the primary site access to Addison Street and Martin Luther King, Jr. Way. (S)

The orientation of the pedestrian access of the Public Safety Building toward Addison Street and Martin Luther King Jr. Way will shift visitor trips toward that street and away from the current access point on McKinley Street. Visitors who drive will be more likely to use short-term parking in the Civic Center Park area, as opposed to residential permit parking which is more convenient to the current Police and Fire Department sites. This will benefit the residents in the areas currently affected by visitor parking, as well as the visitors themselves by shifting their walking trips closer to the area of the *Civic Center Urban Design Plan* with its proposed pedestrian and landscaping improvements. In particular, the planned proximity of the new County



Note:
These volumes include the removal of trips from closed driveways D1 and D3, and trips removed from old driveway D2 (Court Lot) and added to new D2 (new PSB lot).

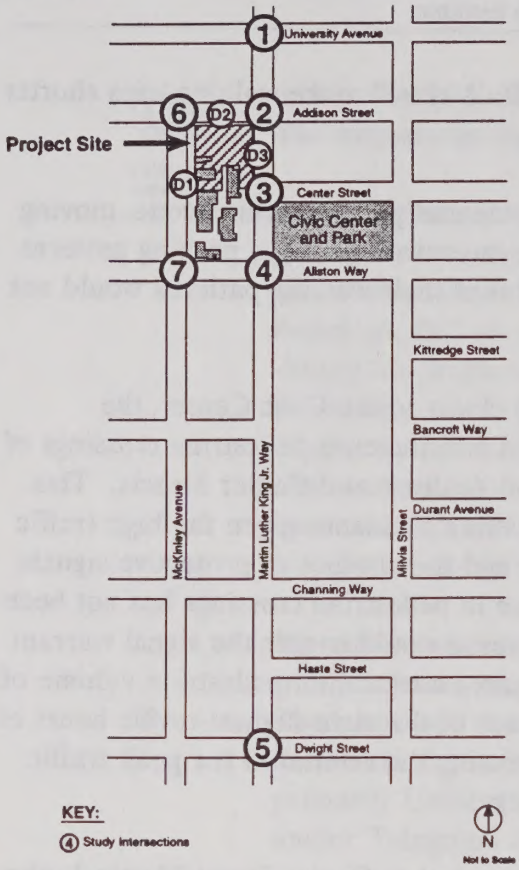


Source: Fehr & Peers Associates, Inc.

BERKELEY CIVIC CENTER
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 22
NET CHANGE IN TRAFFIC VOLUMES
PUBLIC SAFETY BUILDING
PM PEAK HOUR

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

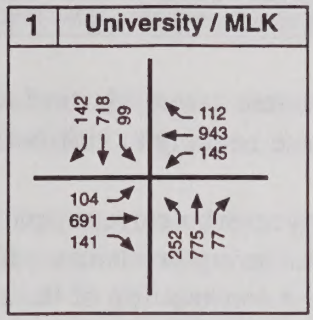


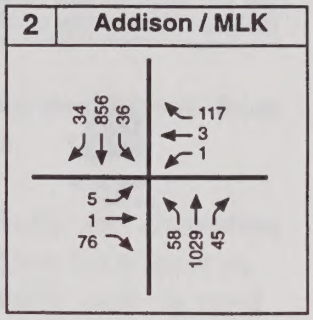
Note:

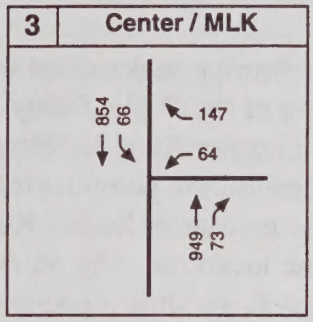
Traffic volumes include existing traffic and project-related traffic

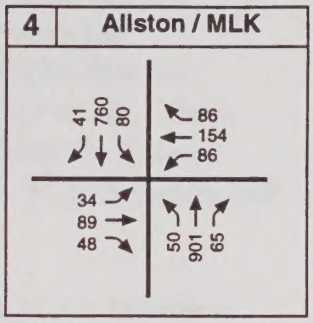
Project-related traffic includes:

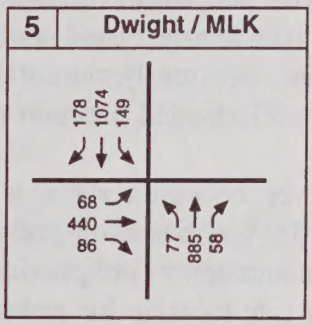
- Removal of existing Police/Fire trips
- Removal of existing Courthouse lot trips
- Addition of new Public Safety Building trips

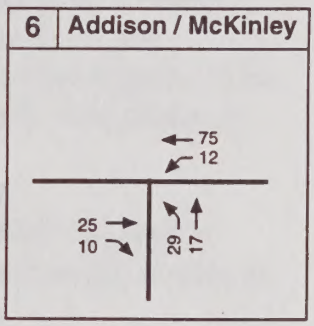


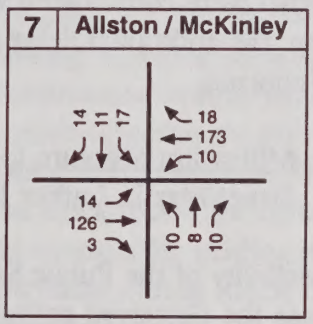












BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 23
EXISTING PLUS PROJECT
TRAFFIC VOLUMES PM PEAK HOUR

Public Safety Building

Courthouse across Martin Luther King Jr. Way will make walking trips shorter for those needing to visit both buildings.

Employees who currently park in the residential permit parking zone, moving their car every two hours, will have little incentive to change parking patterns with the construction of the project, and thus their walking patterns would not be expected to change substantially.

While drawing parkers and walking trips closer to the Civic Center, the location of the Public Safety Building will also increase pedestrian crossings of Martin Luther King, Jr. Way, primarily at Addison and Center Streets. This will increase the potential for auto-pedestrian accidents, given the high traffic volume on Martin Luther King, Jr. Way and the absence of protective signals at these locations. The potential increase in pedestrian crossings has not been calculated, and it is unlikely that the increase would trigger the signal warrant based on pedestrian volumes, which requires a minimum pedestrian volume of 105 in the heaviest-used crosswalk for each of the eight highest-traffic hours of the day. (Currently, the total volume crossing the arterial in the peak traffic hour is 97, divided between two crosswalks).

However, because a signal is already warranted at Center Street/Martin Luther King, Jr. Way based on peak hour traffic volumes, the installation of a signal at this location would provide not only safer traffic flow for Center Street, but also a safe location for pedestrians to cross Martin Luther King, Jr. Way. If the signal were coordinated with the adjacent signals at University and Allston, the additional delay to drivers on Martin Luther King, Jr. Way would be minimized.

> Mitigation Measure G-PSB-3: The City shall install a signal at Center Street/Martin Luther King, Jr. Way. (LTS)

The visibility of the Public Safety Building on Martin Luther King Jr. Way will increase the perceived convenience of bus and BART access, and will in fact make the facility slightly closer both to the Downtown BART station and AC Transit stops along Martin Luther King Jr. Way. Thus, the relocation of the Police and Fire Departments to the Public Safety Building makes transit access marginally better for visitors and employees.

Impact G-PSB-4: During construction of the Public Safety Building, heavy trucks travelling to the site and hauling materials off-site would affect circulation and parking on local streets, particularly University Avenue, Martin Luther King, Jr. Way and Addison Street; pedestrian and bicyclist

Public Safety Building

safety could be affected; accelerated pavement deterioration would result from the temporarily higher truck volumes. (S)

Construction activity typically has the greatest impact on traffic and circulation during the site clearing and preparation phase, which may last from three to six months. It is estimated, based on the construction of other similarly sized buildings, that up to 25 trucks per day would travel to and from the site during the preparation phase, in support of demolition, grading and foundation work. These trucks may temporarily obstruct traffic flow on Martin Luther King, Jr. Way, Addison Street and McKinley Avenue. These obstructions could result in increased traffic congestion, especially if they occur during peak traffic hours, and in less safe conditions for pedestrians and bicyclists crossing or travelling on these roadways.

Pavement deterioration is directly related to truck volume, with automobile traffic volumes having little effect on the pavement life of a given roadway. The additional truck volumes associated with project construction will accelerate the deterioration of pavement on the routes used (anticipated to be primarily University to/from I-80 and Martin Luther King, Jr. Way, Shattuck and/or Telegraph to/from SR 24.)

Mitigation Measure G-PSB-4: The City shall work with the general construction contractor to implement the following measures to address the impacts outlined above:

- Develop a truck routing and construction access plan that identifies the following: 1) off-street construction staging areas and location of construction worker parking; 2) time-of-day limits for construction activity (preferably avoiding the peak hours for employee commuting, for example a 7:00 AM - 4:00 PM work day); 3) designated truck routes for construction vehicles; 4) appropriate traffic controls for guiding traffic and protecting pedestrians and bicyclists during traffic obstructions due to truck maneuvering/loading/unloading.

The City shall will monitor the pavement condition at the following locations (and any others deemed necessary after development of the truck routing plan) before and after project construction, to determine whether a change to the regular maintenance schedule for these roadways is needed due to construction-related pavement damage:

- University west of Martin Luther King, Jr. Way
- Martin Luther King, Jr. Way between University and Addison
- Martin Luther King, Jr. Way between Addison and Dwight

Public Safety Building

- Addison between Martin Luther King, Jr. Way and McKinley
- McKinley between Addison and Allston
- Allston between McKinley and Martin Luther King Jr. Way (LTS)

Impact G-PSB-5: During construction of the Public Safety Building, 79 existing parking spaces, primarily for official police and fire vehicles, will be temporarily displaced; in addition, construction employees will increase parking demand in the area, reducing the supply in the downtown and/or nearby residential areas. (S)

During the construction of the Public Safety Building, 79 existing parking spaces used for official police and fire vehicles will be displaced. As these vehicles are used daily and are required to be available to police fire personnel, nearby replacement parking will be necessary. If provided in nearby off-street lots, these official vehicles would further displace other permit holders with potentially increased impacts on neighborhood parking or on existing downtown lots.

The number of construction employees working on-site on any given day will vary throughout the construction period. The peak number of workers is not known. Construction workers who drive will use parking spaces in the downtown or in the nearby residential areas, unless off-site parking is provided by either the City or the prime contractor. The cost of parking in downtown garages and the difficulty of moving vehicles every two hours may provide an incentive for these workers to park outside the Residential Permit Parking Zone and walk to the site.

Mitigation Measure G-PSB-5: To address the construction-period parking impacts, the City shall:

- Prepare a construction period parking plan for City vehicles displaced from existing public parking areas. The interim parking plan may include modifying existing street patterns to increase on-street parking (such as diagonal parking on McKinley Street), leasing of vacant sites in the area for temporary off-street parking, or leasing additional parking in existing off-street parking garages.
- Require contractors for the Public Safety Building to provide incentives, to the extent financially feasible, for construction workers to use transit, by issuing passes or subsidies for BART and AC Transit.

Public Safety Building

Although these plans may prove somewhat effective in partially mitigating parking impacts during construction of the project, it is probable that the short term (two years) parking impacts of the project will remain significant. (SU)

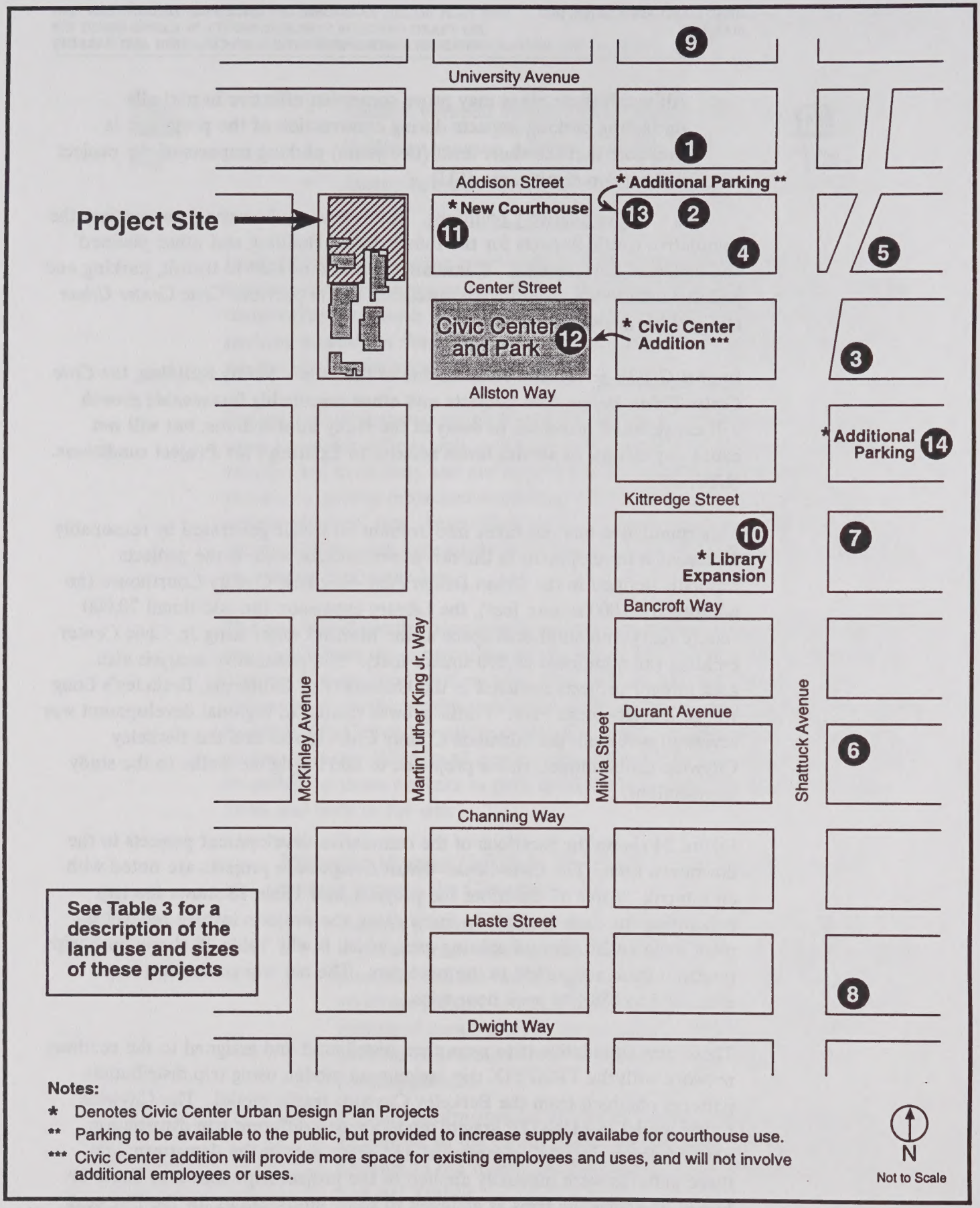
c. Cumulative Conditions. The following discussion summarizes the cumulative traffic impacts for the Public Safety Building and other planned and expected development. Cumulative impacts related to transit, parking and pedestrian/bicycle conditions are discussed in the previous *Civic Center Urban Design Plan* analysis.

Impact G-PSB-6: Traffic volumes due to the Public Safety Building, the *Civic Center Urban Design Plan* projects and other reasonably foreseeable growth will cause small increases in delay at the study intersections, but will not cause any change in service levels relative to Existing Plus Project conditions. (LTS)

This cumulative analysis takes into account all traffic generated by reasonably foreseeable development in the downtown area, as well as the projects explicitly defined in the *Urban Design Plan*—the new County Courthouse (an additional 40,000 square feet), the Library expansion (an additional 70,000 square feet), and additional space at the Martin Luther King Jr. Civic Center building (an additional 20,000 square feet). The cumulative analysis also accounts for projects included in the University of California, Berkeley's Long Range Development Plan. Traffic growth related to regional development was reviewed with both the Alameda County CMA model and the Berkeley Citywide traffic model, and is projected to add negligible traffic to the study intersections.

Figure 24 shows the locations of the cumulative development projects in the downtown area. The *Civic Center Urban Design Plan* projects are noted with an asterisk. Table 17 describes the projects, and Table 18 shows the trip generation for each project. In many cases, the projects involve redevelopment or intensification of existing uses, which is why Table 18 shows both trips removed from and added to the roadways. The net trip generation is estimated to 688 PM peak hour trips.

These new cumulative trips were then distributed and assigned to the roadway network with the TRAFFIX trip assignment model, using trip distribution patterns obtained from the Berkeley Citywide traffic model. The Citywide traffic model (a MINUTP gravity model) shows different trip distribution patterns for residential, commercial and other uses in the downtown, and these patterns were manually applied to the project trips shown in Table 19. Figure 25 shows the trips as assigned to study intersections for the PM peak



Source: Fehr & Peers Associates, Inc.

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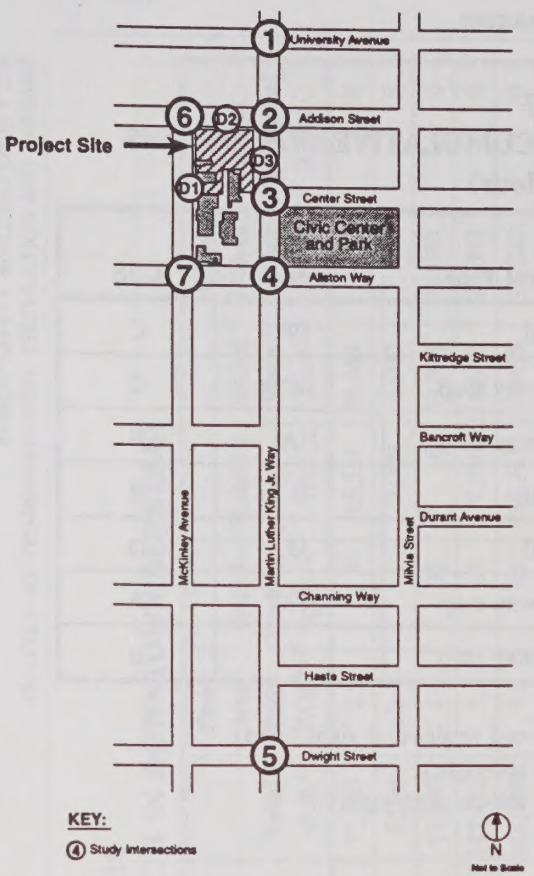
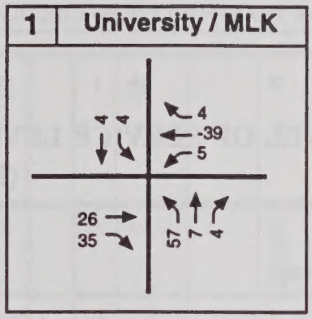
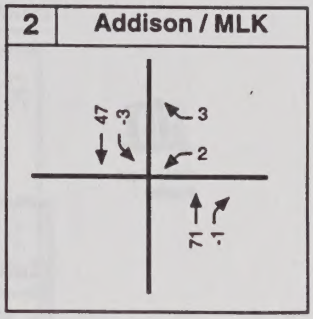
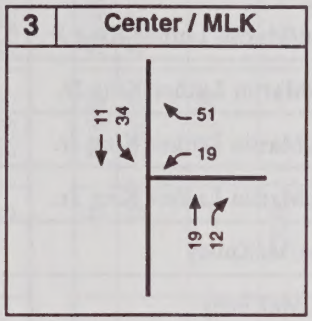
FIGURE 24
LOCATION OF CUMULATIVE DEVELOPMENT PROJECTS

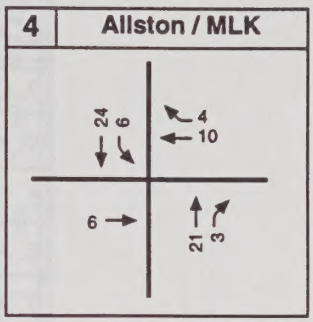
BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

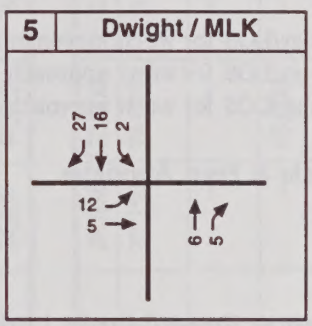


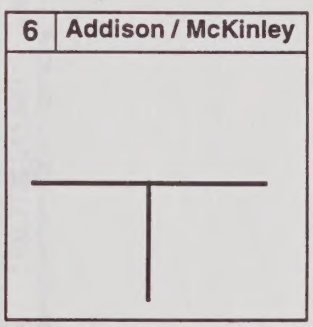


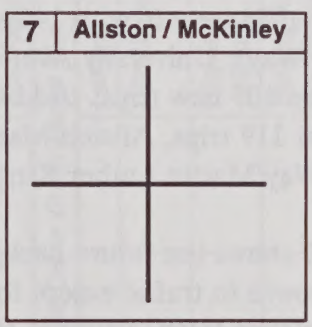












Note:
Traffic volumes include growth associated with:

- Civic Center Urban Design Plan projects (includes county courthouse)
- Other planned or proposed projects

Source: Fehr & Peers Associates, Inc.

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FIGURE 25
FUTURE NON-PROJECT TRAFFIC GROWTH
PM PEAK HOUR

Public Safety Building

Table 17
LEVEL OF SERVICE LEVELS FOR CUMULATIVE CONDITIONS
(PM Peak Hour)

Intersection	Control Type	Delay (seconds)	LOS
1. University/Martin Luther King Jr.	Signal	19	C
2. Addison/Martin Luther King Jr.	Two-way stop	14[a]	C
3. Center/Martin Luther King Jr.	One-way stop	NA	F
4. Allston/Martin Luther King Jr.	Signal	9	B
5. Dwight/Martin Luther King Jr.	Signal	33	D
6. Addison/McKinley	One-way stop	4[b]	A
7. Allston/McKinley	Two-way stop	5[c]	B

[a] Delay/LOS for worst movement (eastbound and westbound right turns).
[b] Delay/LOS for worst approach (northbound left-right).
[c] Delay/LOS for worst approach (southbound left-through-right).

Source: Fehr & Peers Associates.

hour. Center Street/Martin Luther King, Jr. Way would experience the highest traffic growth, with 146 additional trips (primarily on Martin Luther King, Jr. Way); University Avenue/Martin Luther King Jr. Way would experience 107 new trips; Addison Street/Martin Luther King Jr. Way, an additional 119 trips, Allston/Martin Luther King Jr. Way, 71 trips, and Dwight Way/Martin Luther King Jr. Way, 73 trips.

Figure 26 shows the future background traffic volumes (i.e., all existing and future growth in traffic except for Public Safety Building) and Figure 27 shows the cumulative traffic volumes (Future Background traffic plus Public Safety Building traffic.)

The intersection service levels for the cumulative case were calculated and are shown in Table 17. While a few seconds of additional delay is incurred at the intersections along Martin Luther King, Jr. Way, the levels of service do not fall below their Existing Plus Project levels.

No mitigation is required for this less than significant impact.

Public Safety Building

Table 18
PLANNED DEVELOPMENT PROJECTS IN DOWNTOWN BERKELEY

Address	Downtown Plan Site #	Planned Use(s)	Lot sq.ft.	Total sq.ft.[a]	Floor Area Ratio (FAR)[b]	Added Parking Spaces	Existing Floor Area	Added Floor Area	Above Ground Parking Area	Added Residential Units
1. 2000 Block Addison	7	Theatre	25,847	75,000	2.9	0	25,531	49,469	0	0
2. 2000 Block Addison (City garage)	--	Retail	n/a	5,000	n/a	0	5,000	5,000	0	0
3. 2161 Allston (approved)	17	Office/Retail	12,000	49,000	4.1	33	0	39,000	10,000	0
4. 2020 Center (approved)	part 18	Office	29,000	147,400	5.1	60	9,750	116,650	21,000	0
5. 2119-2147 Center (BOA; UCB)	15	Office/Retail	65,430	261,720	4.0	90	39,765	208,455	13,500	0
6. 2131 Durant (approved SRO)	24	Res./Retail	21,750	56,400	2.6	43	0	43,500	12,900	199
7. 2176 Kittredge	--	Residential	21,348	32,000	1.5	20	4,676	21,324	6,000	30
8. 2452 Shattuck (approved)	--	Res./Retail	5,800	18,000	3.1	0	0	18,000	0	24
9. 2060 University-Campanile	--	Res./Retail	14,870	44,000	3.0	0	12,975	31,025	0	10
Projects which are part of the *Civic Center Urban Design Plan*										
10. 2090 Kittredge	--	Library	28,678	120,000	2.4	0	50,000	70,000	0	--
11. 2105 MLK (with PG&E, 1907 Center)	--	Courthouse	23,250	70,677	4.3	0	30,000	40,677	0	-16
12. 2180 Milvia	--	City Hall Addition	--	--	--	--	20,000	--	--	--
13. 2000 Addison (addition to City garage)	--	Parking for Courthouse	--	60,000	--	200	--	--	60,000	0
14. City Kittredge Lot	21	Pkng./Retail	50,000	130,000	2.6	267	0	10,000	--	--
Totals			302,773	1,045,520	n/a	n/a	252,697	694,423	n/a	247

[a] Including above ground parking.
[b] Above ground.

Source: City of Berkeley Planning Department.

Table 19
CUMULATIVE PROJECT TRIP GENERATION

Location	Existing					Redeveloped					Net PM Trips
	Use	Size	Units	PM Rate	PM Trips	Use	Size	Units	PM Rate	PM Trips	
1. 2000 Block Addison	Auto Repair	25.53	ksf	8.13	208	--	--	--	--	--	-208
3. 2161 Allston	--	--	--	--	--	Retail Office	5 34	ksf ksf	5.1 1.78	26 61	86
4. 2010/2020 Center 5. 2119 Center	Retail Retail Bank	9.75 25 14.77	ksf ksf ksf	5.1 5.1 15.27	50 128 225	--	--	--	--	--	-403
6. 2131 Durant	--	--	--	--	--	Retail	8.7	ksf	5.1	44	44
14. City Kittredge Lot 10. 2090 Kittredge 7. 2176 Kittredge	Library Car Wash/Gas	50 4.67	ksf ksf	0.20 n/a	10 52	Retail Library Retail --	10 120 2 --	ksf ksf ksf --	5.1 0.20 5.1 --	51 24 10 --	23
2080 University	--	--	--	--	--	Retail	11	ksf	5.1	56	56
Milvia/Allston	--	--	--	--	--	BUSD Offices	20	ksf	1.78	36	36
2425 Shattuck	--	--	--	--	--	Retail	0.3	ksf	5.1	2	2
2080 University	Retail	2.98	ksf	5.1	15	--	--	--	--	--	-15
1. 2000 Block Addison 1. 2000 Block Addison	-- --	-- --	-- --	-- --	-- --	Office Theatre Retail Retail	50 23 5 5	ksf ksf ksf ksf	1.78 0.21 5.1 5.1	89 5 26 26	145
4. 2010 Center 4. 2020 Center 5. 2119 Center	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --	Office Retail Office Retail	116.4 10 208.2 40	ksf ksf ksf ksf	1.78 5.1 1.78 5.1	207 51 371 204	833
6. 2131 Durant	--	--	--	--	--	Res.Hotel	107	room	.01	0	0

Public Safety Building

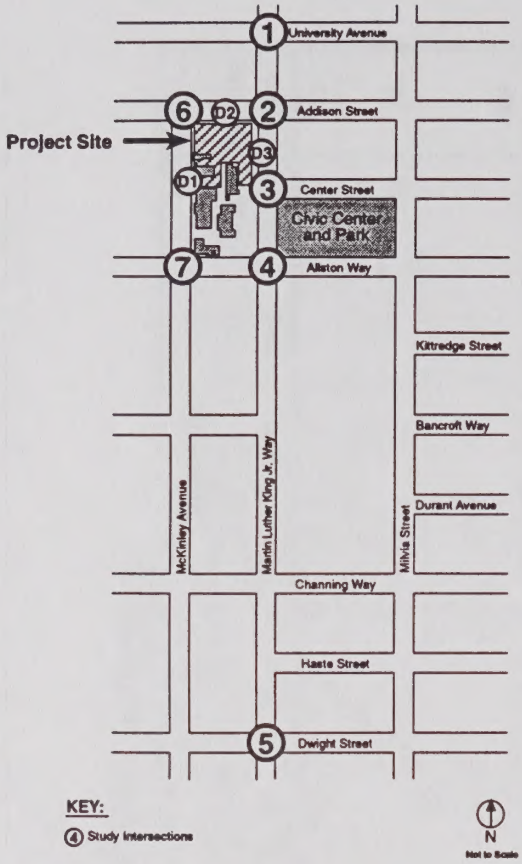
Table 19 *continued*

Location	Existing					Redeveloped					Net PM Trips
	Use	Size	Units	PM Rate	PM Trips	Use	Size	Units	PM Rate	PM Trips	
7. 2176 Kittredge	--	--	--	--	--	Resid.	30	du	0.54	16	16
2425 Shattuck	--	--	--	--	--	Resid.	24	du	0.54	13	13
2080 University	Resid.	36	du	0.54	19	Resid.	46	du	0.54	25	5
Public Safety Building Block											
McKinley	PSB	--	--	--	174	--	--	--	--	--	-174
Addison	PSB	--	--	--	--	--	--	--	--	174	174
MLK	Courthouse	--	--	--	39	--	--	--	--	--	-39
Center	--	--	--	--	--	Courthouse	70.7	ksf	--	94	94
TOTAL											**688**

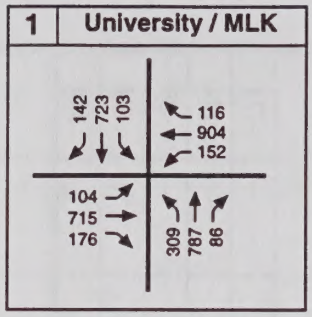
Public Safety Building

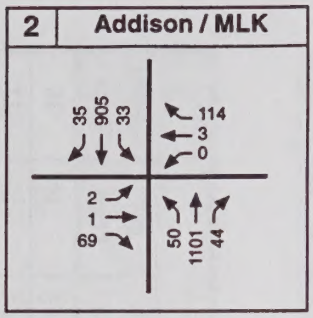
Note: For purposes of this table, trip generation rates have been rounded.

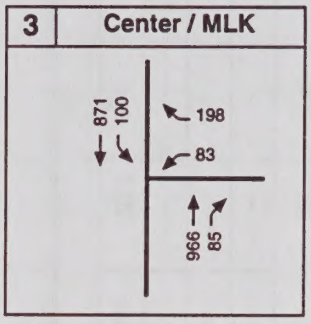
Source: Fehr & Peers Associates.

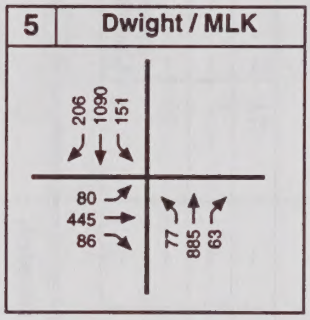


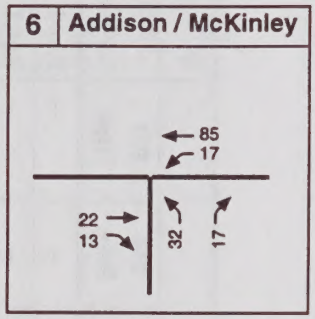
Note:
Traffic volumes include existing traffic plus future non-project traffic growth.

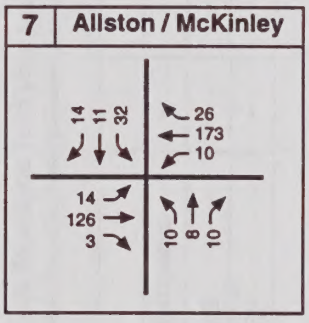


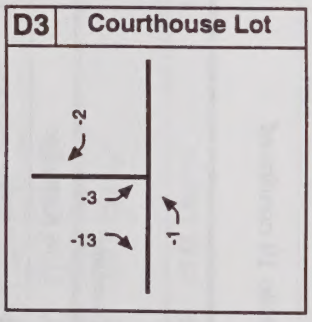












Source: Fehr & Peers Associates, Inc.

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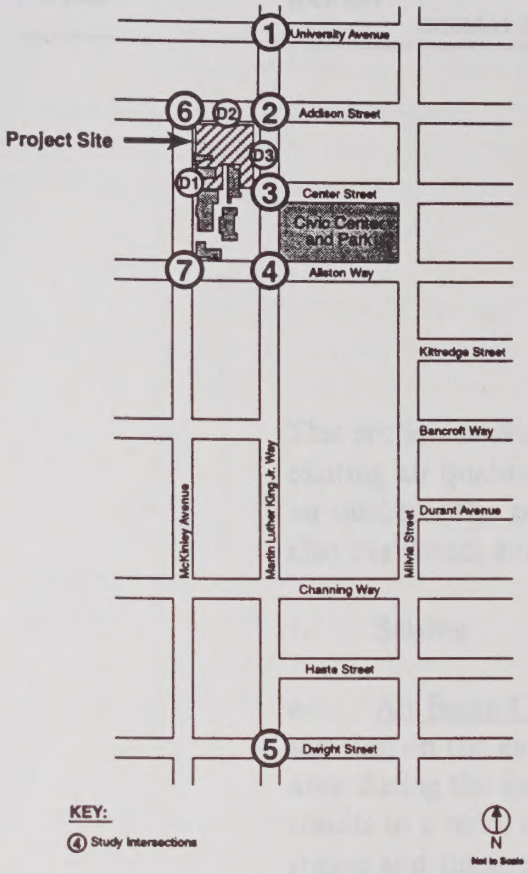
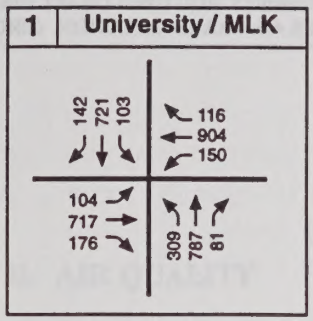
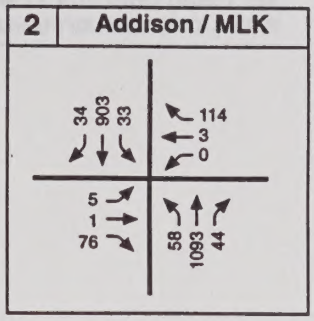
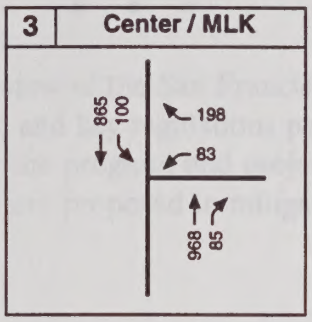
FIGURE 26
FUTURE BACKGROUND
TRAFFIC VOLUMES

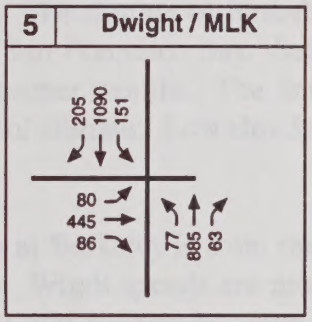


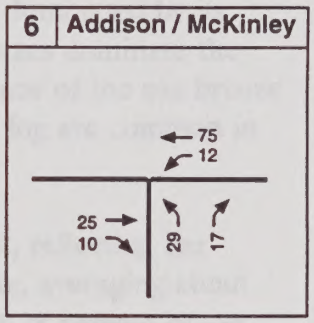
Note:
Traffic volumes include existing traffic and all future growth (including project traffic).

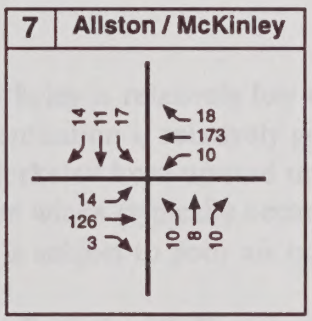












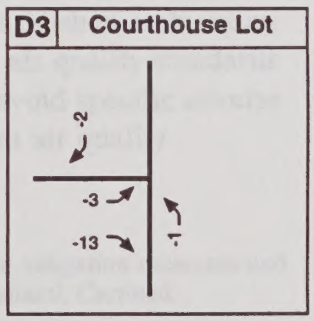


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FIGURE 27
CUMULATIVE TRAFFIC VOLUMES
PM PEAK HOUR

H. AIR QUALITY[1]

■ ■ ■

This section provides an overview of the San Francisco Air Basin climatology, existing air quality conditions, and key regulations pertaining to the control of air quality. The potential for the program and project to impact air quality is also evaluated, and measures are proposed to mitigate possible impacts.

1. Setting

a. Air Basin Climatology. The climate of Berkeley is dominated by its location on the east shore of San Francisco Bay. Sea breezes dominate the area during the spring and summer months. The dominance of the sea breeze results in a mild, relatively cool climate. Low clouds and fog are common in spring and summer.

The prevailing wind direction at Berkeley is from the west, reflecting the direction to the Golden Gate. Winds speeds are moderate, averaging about 7.3 miles per hour annually. Calm conditions occur about 28 percent of the time annually.[2]

The pollution potential in Berkeley is relatively low compared to other portions of the Bay Area. Ventilation is relatively good, and there is little transport of pollutants into Berkeley from upwind urban areas. However, during periods of light or calm winds (typically occurring in the fall and winter months), the entire air basin is subject to poor air quality.

b. Air Quality Standards. Both the US Environmental Protection Agency and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards set levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality

[1] Background information, analysis of impacts, recommendation of mitigation measures and graphics for the *Air Quality* section have been prepared by Donald Ballanti, Certified Consulting Meteorologist.

[2] California Department of Water Resources. *Wind in California*. Bulletin 185. 1978.

standards cover what are termed "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. Table 20 identifies the major criteria pollutants, characteristics, health effects and typical sources.

Another group of substances known as Toxic Air Contaminants (TACs), are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants.

The federal and State ambient air quality standards are summarized in Table 21 for major criteria pollutants. The federal and State ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and State standards differ in some cases. In general, the California State standards are more stringent. This is particularly true for ozone and PM_{10}.

c. Current Air Quality. The Bay Area Air Quality Management District (BAAQMD) operates a network of permanent monitoring sites throughout the Bay Area. The closest site to the project is located in downtown Oakland on Alice Street, about 4 miles south of the project site. Another monitoring site is located about 7 miles north of the project site in Richmond.

Table 21 summarizes air quality data from these monitoring sites during the period 1990-1994. Table 21 shows the number of days that the State or federal standard was exceeded for five major pollutants.

Table 22 shows that the ambient air quality standards are met in the project area with the exception of the State standards for ozone and PM_{10}.

d. Local Air Pollution Sources. The project area is highly urbanized but contains no major point sources of air pollution.[3] The largest sources of emissions in the area are vehicles on surface streets.

The Toxic "Hot Spots" Information and Assessment Act (Assembly Bill 2588), enacted in 1987, required the Bay Area Air Quality Management District (BAAQMD) to develop information on TAC emissions and resultant health

[3] Bay Area Air Quality Management District. *Base Year 1987 Emissions Inventory Summary Report*. October 1991.

Table 20
MAJOR CRITERIA POLLUTANTS

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	Highly reactive photochemical pollutant created by the reaction of sunlight on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen). Often called photochemical smog.	• Eye irritation • Respiratory function impairment.	The major sources of ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, confusion, dizziness. • Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in wood stoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air; formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Colorless gas with a pungent, irritating odor.	• Aggravation of chronic obstruction lung disease. • Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
PM_{10}	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Source: Donald Ballanti, Certified Consulting Meteorologist, 1996.

Table 21
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide	Annual 1-Hour	0.05 PPM --	-- 0.25 PPM
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 PPM 0.14 PPM --	-- 0.05 PPM 0.5 PPM
PM_{10}	Annual 24-Hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	30 $\mu g/m^3$ 50 $\mu g/m^3$
Lead	30-Day Avg. Month Avg.	-- 1.5 $\mu g/m^3$	1.5 $\mu g/m^3$ --

PPM = Parts per Million
$\mu g/m^3$ = Micrograms per Cubic Meter

Table 22
AIR QUALITY DATA FOR OAKLAND AND RICHMOND (1990-1994)[a,b]

Pollutant/Standard	Monitoring Site	Number of Violations During: 1990	1991	1992	1993	1994
Ozone Fed. 1-Hour	Oakland Richmond	0 0	0 0	0 0	0 0	0 0
Ozone State 1-Hour	Oakland Richmond	0 0	0 0	0 0	1 2	0 0
Carbon Monoxide State/Fed. 8-Hour	Oakland Richmond	0 0	0 0	0 0	0 0	0 0
Nitrogen Dioxide State 1-Hour	Richmond	0	0	0	0	0
Sulfur Dioxide State 24-Hour	Richmond	0	0	0	0	0
PM_{10} Fed. 24-Hour	Richmond	0	0	0	0	0
PM_{10} State 24-Hour	Richmond	5	9	5	3	3

[a] California Air Resources Board. *California Air Quality Data*. Annual Summaries. 1991-1994.
[b] Bay Area Air Quality Management District. *Air Currents*. April 1995.

risks. A review of the BAAQMD TAC inventory of sources reveals no TAC sources in proximity to the project site.[4]

e. Sensitive Receptors. The Bay Area Air Quality Management District defines sensitive receptors as those facilities most likely to be used by the elderly, children, infirm, or persons with particular sensitivity to air pollutants. Two such sensitive receptors exist within or adjacent the project boundaries:

- Berkeley High School
- Martin Luther King Jr. Civic Center Park

f. Attainment Status and Regional Plans. The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate as "nonattainment areas" portions of the State where the federal or State ambient air quality standards are not met. Because of the differences between the national and State standards, the designation of nonattainment areas is different under the federal and State legislations.

The Bay Area was recently redesignated by the US Environmental Protection Agency as a "maintenance area" for ozone. The "Urbanized Area" of the air basin is considered a nonattainment area for carbon monoxide; however, a request for redesignation to "maintenance area" has been submitted to the US Environmental Protection Agency. The air basin is an attainment area or is unclassified for all other national ambient air quality standards.

Under the California Clean Air Act the entire San Francisco Bay Air Basin is a nonattainment area for ozone and PM_{10}. The air basin is either an attainment area or unclassified for other pollutants.

The Bay Area has both a federal and State air quality plan. The federal plan[5] and the area-wide plan required by the California Clean Air Act[6] propose the imposition of controls on stationary sources (including factories, power plants, and industrial sources), and Transportation Control Measures to reduce emissions from automobiles.

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[4] Bay Area Air Quality Management District. *Toxic Air Contaminant Control Program Annual Report 1992.* 1992.

[5] Association of Bay Area Governments. *1982 Bay Area Air Quality Plan.* December 1982.

[6] Bay Area Air Quality Management District. *Bay Area '91 Clean Air Plan (CAP).* October 1991.

2. Impacts and Mitigation Measures

Appendix G of the *CEQA Guidelines* establishes that a project will normally have a significant impact on air quality if it will: violate any air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

The *Civic Center Urban Design Plan* and Public Safety Building would have a significant impact on air quality if they would:

- Result in a predicted violation of the carbon monoxide ambient air quality standards due to project traffic on the local street network.
- Result in an increase in emissions of an ozone precursor or PM_{10} exceeding the Bay Area Air Quality Management District's recommended thresholds of significance. The District considers increases in emissions of a regional pollutant of 80 pounds per day to represent a significant adverse impact.[7]
- Result in construction activities (with their attendant exhaust emissions and fugitive dust) near existing land uses.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan. Air quality impact analysis for the *Civic Center Urban Design Plan* looks first at construction period impacts, followed by consideration of localized potential impacts in the vicinity of the Civic Center and regional impacts on the San Francisco Bay Area.

(1) Construction Period Impacts.

Impact H-CC-1: Construction activities such as demolition, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive particulate matter emissions that would affect local air quality. (S)

Demolition and construction activities are a source of organic gas emissions. Solvents in adhesives, non-waterbase paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

[7] Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines*, 1996.

Civic Center Urban Design Plan

Major air quality impacts that would occur during construction of new development allowed under the *Civic Center Urban Design Plan* would stem from dust generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Demolition and earthmoving activities comprise the major source of construction dust emissions, but traffic and general disturbance of the soil also generate significant dust emissions.

Construction dust impacts are extremely variable, depending on windspeed, soil type, soil moisture, the type of construction activity and the acreage of the construction site. The highest potential for construction dust impacts would occur during the late spring, summer and early fall months when soils are dry.

The effects of demolition and construction activities would be increased dustfall and locally elevated levels of suspended particulates. Existing land uses could be adversely affected by construction activities.

Mitigation Measure H-CC-1: Environmental review documentation for specific projects proposed in the Civic Center should contain dust-control requirements, like the following.

Construction contracts should include the following requirements for *demolition* activities:

- Whenever possible, dust-proof chutes should be used for loading construction debris onto trucks.
- Watering should be used to control dust generation during demolition of structures and break-up of pavement.
- Load beds on all trucks removing debris from the site should be covered.

Construction contracts should include the following requirements of *construction* activities:

- Truck speeds within the site should be limited to 15 MPH to reduce entrainment of dust in the wakes of trucks.
- Finished grades should be treated with soil stabilizers or seeded for landscaped areas.
- Suspension of dust-producing activities during periods of high winds when dust control measures are unable to avoid visible dust plumes.

Civic Center Urban Design Plan

- During the dry season (May-October) provide equipment and staffing for watering of all exposed or disturbed soil surfaces at least twice daily.
- Require daily clean-up of mud and dirt carried onto paved streets from the site.
- Any fine materials transported by truck will be covered or wetted down to control dust. (LTS)

(2) Local Impacts. Development allowed under the plan could affect local air quality by changing traffic patterns. Emissions of local pollutants, such as carbon monoxide, would be modified along streets providing access to the site. However, impacts on local carbon monoxide concentrations are predicted to be less-than-significant.

Carbon monoxide concentrations under worst-case meteorological conditions have been predicted for three signalized intersections affected by traffic from development envisioned by the *Civic Center Urban Design Plan*. Typically, the highest concentrations of carbon monoxide are found near congested intersections, where vehicle idling, acceleration and deceleration result in the highest rate of emissions.

PM peak traffic volumes were applied to the CALINE-4 dispersion model to predict maximum 1-and 8-hour concentrations near these intersections. The model was run for existing traffic conditions, *Civic Center Urban Design Plan* development and cumulative project traffic. The analysis was performed for the year 2000. Appendix E provides a description of the CALINE-4 model and a discussion of the methodology and assumptions used in the analysis.

Table 23 shows the results of the intersection analysis for the peak hour traffic period and the 8-hour peak traffic period. These values are to be compared to the federal 1-hour standard of 35 PPM and the State standard of 20 PPM, and the 8-hour standard (federal and State) of 9.0 PPM.

Existing concentrations at the three intersections analyzed do not exceed the State and federal standards. Concentrations in the year 2000 with the addition of *Civic Center Urban Design Plan* and cumulative project traffic would be less than current levels due to gradually declining emission rates for vehicles. The addition of *Civic Center Urban Design Plan* traffic would not cause violation of the State or federal ambient air quality standards.

Civic Center Urban Design Plan

Table 23
PREDICTED WORST-CASE CARBON MONOXIDE CONCENTRATIONS

Intersection	Existing (1996)		Existing + Public Safety Building (1996)		Civic Center Urban Design Plan + Cumulative	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
Martin Luther King/University	11.5	8.3	11.5	8.3	9.1	6.6
Martin Luther King/Allston	9.5	6.9	9.5	8.3	7.4	5.4
Martin Luther King/Dwight	10.0	7.3	10.0	7.3	7.9	5.8
Most Stringent Standard	20.0	9.0	20.0	9.0	20.0	9.0

Source: Donald Ballanti, Certified Consulting Meteorologist, 1996.

The concentrations shown in Table 23 are expected to be the highest in the immediate vicinity of each of the intersections analyzed. Carbon monoxide concentrations away from these intersections would be considerably lower. Concentrations at any sensitive receptors would be below those shown in Table 23 and would meet the applicable State and federal standards.

(3) Regional Impacts. Traffic from development allowed under the *Civic Center Urban Design Plan* could have an effect on air quality outside the vicinity of the Civic Center. Trips to and from the project would result in air pollutant emissions over the entire Bay Area. The regional impact of new vehicular travel was quantified and found to be less than the BAAQMD thresholds of significance, and thus would be a less than significant impact.

To evaluate emissions associated with implementation of the plan, the URBEMIS-5 computer program, developed by the California Air Resources Board, was employed. The daily increases in regional emissions from project land uses are shown in Table 24 for reactive organic gases and oxides of nitrogen (two precursors of ozone) and PM_{10} (particulate matter, 10 microns). The URBEMIS-5 model and the conditions assumed in its use are described in Appendix E.

The following discussion addresses the cumulative air quality impacts of traffic generation by the *Civic Center Urban Design Plan*, the Public Safety Building, and other reasonably foreseeable cumulative development.

Civic Center Urban Design Plan

Impact H-CC-2: New traffic generated by cumulative development would significantly increase regional air pollutant emissions. (S)

The daily increases in regional emissions from project land uses are shown in Table 24 for reactive organic gases and oxides of nitrogen (two precursors of ozone) and PM_{10}. The URBEMIS-5 model and the conditions assumed in its use are described in Appendix E.

Table 24 shows that predicted regional emissions from cumulative development (81.2 pounds/day).would exceed the BAAQMD thresholds of significance for NOx (80.0 pounds/day).

> Mitigation Measure H-CC-2: The City will continue to vigorously pursue the trip reduction and alternative transportation mode policies contained in the *Berkeley Downtown Plan*. The City's proposed *Civic Center Urban Design Plan* contains additional measures which will further these policies and facilitate transit, walking and bicycling trips. (LTS)

Reducing cumulative regional air quality impact to below the BAAQMD significance thresholds would require daily trip reduction to be reduced by 1.5 percent (from 81.2 to 80.0 pounds/day), a level that would be easily attained by comprehensive trip reduction programs.

Cumulative development would affect local air quality by changing traffic patterns. Carbon monoxide concentrations under worst-case meteorological conditions have been predicted for three signalized intersections affected by traffic from cumulative development.

Table 23 shows the results of the intersection analysis for the peak hour traffic period and the 8-hour peak traffic period. These values are to be compared to the federal 1-hour standard of 35 PPM and the State standard of 20 PPM, and the 8-hour standard (federal and State) of 9.0 PPM.

Cumulative case concentrations at the three intersections analyzed do not exceed the State and federal standards. Concentrations in the year 2000 with the addition of cumulative project traffic would be less than current levels due to gradually declining emission rates for vehicles. The addition of cumulative traffic would not cause violation of the State or federal ambient air quality standards.

Civic Center Urban Design Plan

Table 24
PROJECT-RELATED REGIONAL EMISSION INCREASES

	Daily Emission (Pounds/Day)		
	ROG	NOx	PM_{10}
Civic Center Urban Design Plan	1.5	1.7	0.3
Civic Center Urban Design Plan + Cumulative Development	65.8	81.2	12.7
BAAQMD Significance Threshold	80.0	80.0	80.0

ROG = Reactive Organic Gases
NOx = Nitrogen Oxides
PM_{10} = Particulate Matter, 10 micron diameter or smaller

Source: Donald Ballanti, Certified Consulting Meteorologist, 1996.

Public Safety Building

b. Public Safety Building. Air quality analysis of the Public Safety Building considers potential impacts from construction period activities as well as local and regional traffic-related impacts.

Impact H-PSB-1: Construction activities such as demolition, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth would generate exhaust emissions and fugitive particulate matter emissions that would affect local air quality. (S)

Mitigation Measure H-PSB-1: All applicable construction contracts for the Public Safety Building shall contain dust-control requirements. (See Mitigation Measure H-CC-1 above for a list of these requirements.) (LTS)

Table 23 shows the results of the intersection analysis for the peak hour traffic period and the 8-hour peak traffic period for existing conditions and with traffic changes resulting from relocation of the activities that will occupy the Public Safety Building. When compared to the federal 1-hour standard of 35 PPM and the State standard of 20 PPM, and the 8-hour standard (federal and State) of 9.0 PPM, the reader can see that changes in the concentration of carbon monoxide would be less than 0.1 PPM at the three intersections analyzed. No violations of either the 1-hour or 8-hour standard are predicted.

The public safety building would not generate any new vehicle trips, since it would be replacing an existing facility. Traffic volumes on adjacent streets would be changed, but there would be no net increase in regional vehicle travel.

I. NOISE[1]

■ ■ ■

This section provides an overview of the existing noise conditions within the Civic Center planning area, provides a summary of noise regulations, and the results of a noise monitoring program initiated for this environmental review. The potential for the program and project to create noise impacts is also evaluated, and measures are proposed to mitigate possible impacts. Appendix F provides background information on the concepts, terminology and methodology of acoustical analysis.

1. Setting

a. Noise Regulations. The Noise Element of the *Berkeley Master Plan* incorporates the Noise and Land Use Compatibility Guidelines recommended by the State of California, Office of Noise Control, for noise and land use planning. These guidelines establish four compatibility categories for various land uses designating the noise environment as "normally acceptable", "conditionally acceptable," "normally unacceptable", and "clearly unacceptable" with corresponding noise levels that vary depending upon the sensitivity of the land use to community noise. For example, residential development is considered "normally acceptable" up to an L_{dn} of 60 dB, and office buildings are considered "normally acceptable" up to an L_{dn} of 70 dB. These guidelines will be used to evaluate the compatibility of the proposed land uses with the existing and future noise environment.

The City of Berkeley's Noise Ordinance (Chapter 13.40 of the Municipal Code) establishes noise regulations in the City of Berkeley. The Noise Ordinance regulates the maximum allowable noise that one land use can generate that would affect a neighboring land use. New land uses within the City are subject to the requirements of the Noise Ordinance. The Ordinance also regulates the allowable hours for construction and demolition work and sets forth guidelines for maximum allowable noise levels in residential single

[1] Background information, analysis of impacts, recommendation of mitigation measures and graphics for the *Noise* section have been prepared by Illingworth and Rodkin, Inc., Acoustical Engineers.

-family, multi-family, and commercial and industrial areas. Maximum allowable noise levels for major land use categories are shown in Table 25.

b. Existing Noise Environment. The noise environment in the Berkeley Civic Center area is influenced primarily by vehicular traffic on the local street network. People circulating on the streets and conversing also contribute to the sounds which are heard. Noise from construction activities is intermittent.

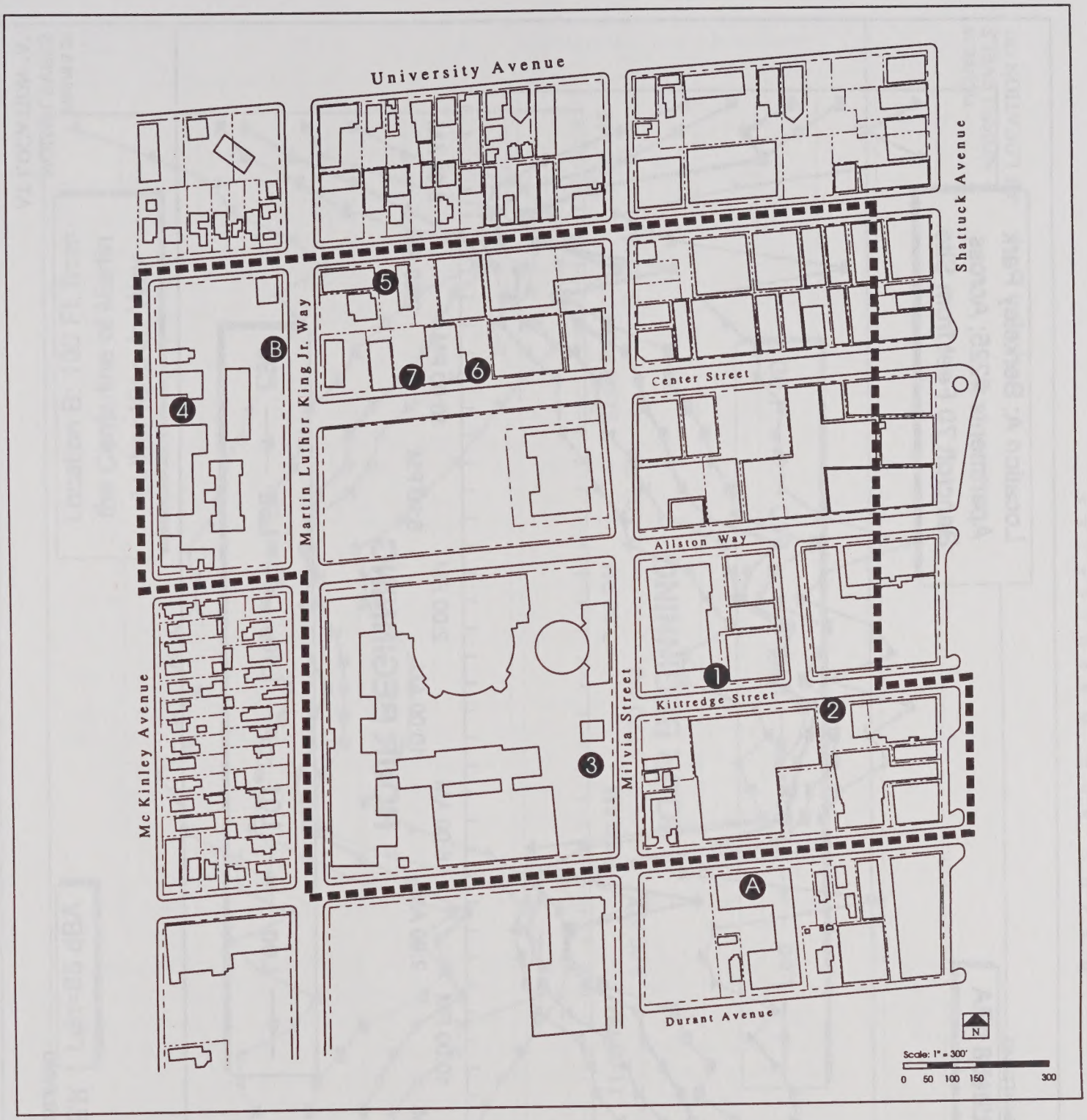
Noise levels were measured in May, June and July of 1995 in the Civic Center area as a part of the *Alameda County Courthouse EIR* currently being prepared by the County of Alameda. Noise levels were monitored over a continuous 24-hour period at two locations, A and B, as shown on Figure 28. Location A is on the balcony of the Berkeley Park Apartments located across Bancroft Way from the site of the proposed Court Building between Milvia Street and Shattuck Avenue. Location B is on Martin Luther King Jr. Way at Center Street, near the site of the proposed Public Safety Building. Short-term noise levels were monitored at seven additional locations throughout the area in order to characterize typical daytime noise levels. The timing and results of these measurements are shown in Figures 29 and 30 and in Table 26. Average roadside noise levels typically range from 60 to 65 dBA during the daytime and 50 to 60 dBA during the nighttime.

The *Berkeley General Plan Update* estimates existing CNEL levels along several major streets in the Civic Center area. They include 62 dBA on Allston Street, 64-66 dBA on Milvia Street, 69 dBA on Shattuck Avenue, and 70-72 dBA on University Avenue.

2. Impacts and Mitigation Measures

The proposed *Civic Center Urban Design Plan* and the Public Safety Building would have a significant impact on the noise environment if they would:

- Conflict with adopted environmental plans and goals of the community where they are located.
- Increase substantially the ambient noise level at sensitive receptors. Impacts would be significant:
  - if the noise resulting from implementation of the plan or the proposed project were to increase ambient noise levels by 3 dBA or more and the predicted noise levels are above "normally acceptable" levels for affected land uses; or,
  - if the noise resulting from implementation of the plan or the proposed project were to increase ambient noise levels by 5 dBA

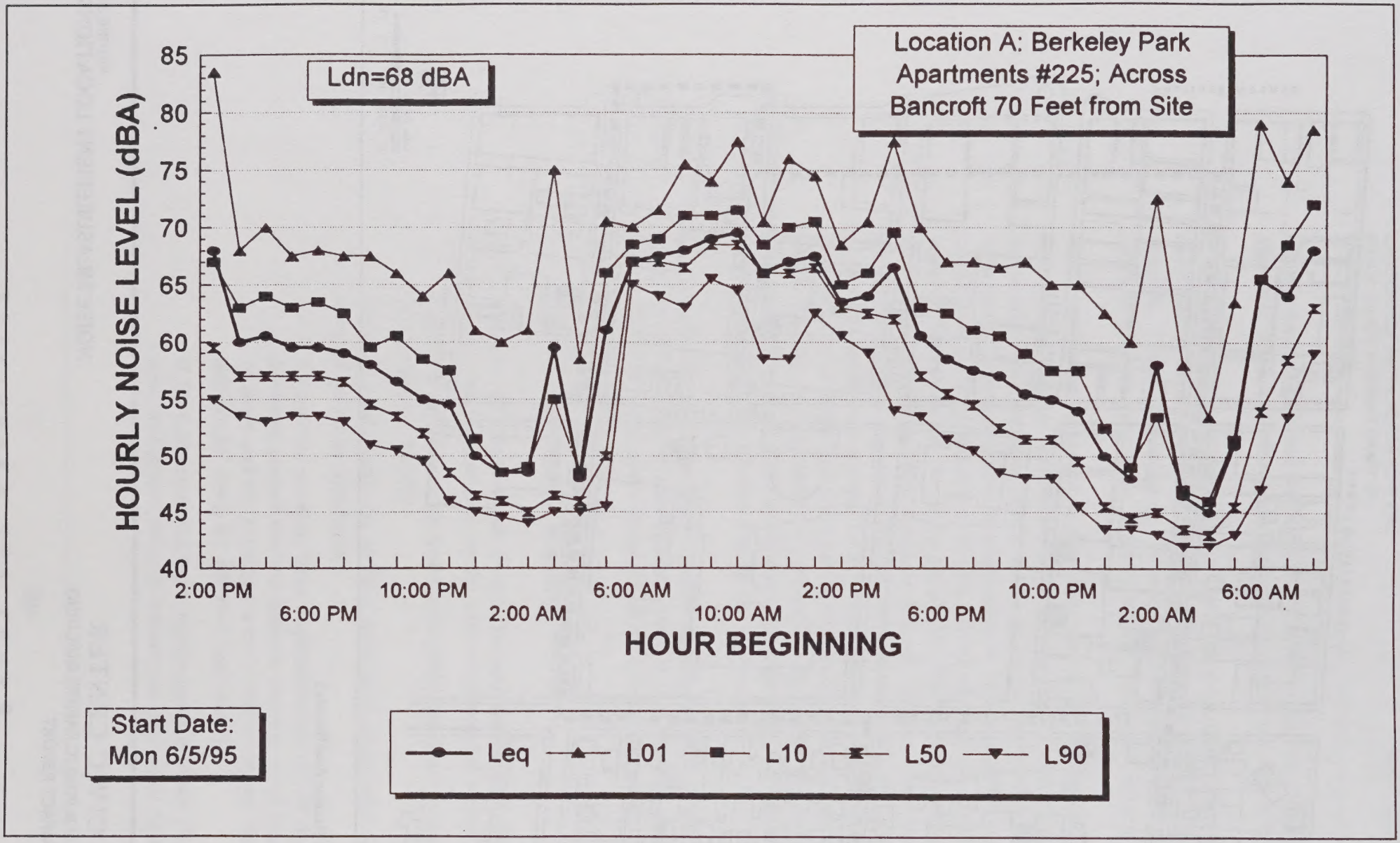


Civic Center Planning Area Boundary

BERKELEY CIVIC CENTER

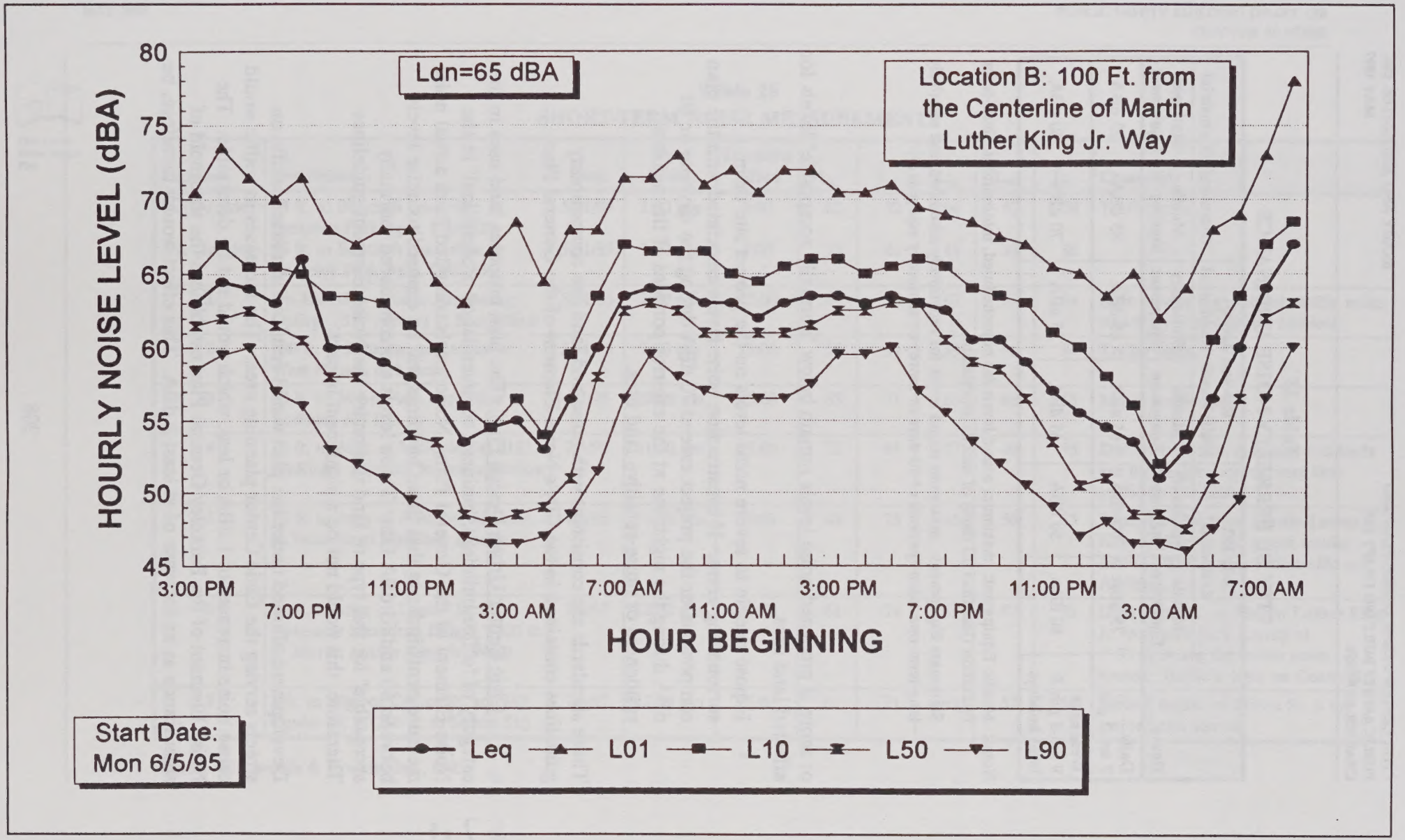
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 28
NOISE MEASUREMENT LOCATIONS



BERKELEY CIVIC CENTER
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 29
NOISE LEVELS
AT LOCATION "A"



BERKELEY CIVIC CENTER
URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 30
NOISE LEVELS
AT LOCATION "B"

480-029

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Table 25
CITY OF BERKELEY NOISE ORDINANCE

Hours	R-1, R-2 Residential		R-3 and Above Multi-Family Residential		Commercial/Industrial	
	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
Daily 7 am-7 pm	75 dBA	60 dBA	65 dBA	65 dBA	85 dBA	70 dBA
Weekends 9 am-8 pm & legal holidays	60 dBA	50 dBA	65 dBA	55 dBA	70 dBA	60 dBA

Notes: Mobile Equipment: maximum sound levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment.

Stationary Equipment: maximum sound levels for repetitively scheduled and relatively long-term operation (periods of 10 days or more) or stationary equipment.

or more if predicted noise levels remain below "normally acceptable" levels for affected land uses.

- Expose people to severe noise levels on the project site or in surrounding areas. If construction noise levels associated with the plan components or the project exceed 70 dBA during the daytime or 60 dBA during the nighttime at the exterior portions of the nearest residences or noise-sensitive land uses.

These standards are consistent with noise and land use compatibility guidelines contained in the City's Noise Element of the General Plan.

Civic Center Urban Design Plan

a. Civic Center Urban Design Plan. The plan proposes land uses in the category of "office buildings, business, commercial or professional" in the Noise Element of the General Plan. Noise levels compiled from actual noise measurements indicate that these buildings will be exposed to noise levels between 60 and 65 dBA Ldn. These levels are considered "normally acceptable" for this type of land use under the Noise Element guidelines Therefore, this would not be a significant impact.

Development allowed under the plan would result in increased traffic on streets serving the Civic Center planning area. The increases in traffic would cause noise increases of 1 dBA or less, which would not be detectable. The Noise Element of the Berkeley General Plan establishes the threshold of significance as an increase of at least 3 dBA. This effect would, therefore, be

Civic Center Urban Design Plan

Table 26
SHORT-TERM NOISE MEASUREMENTS

Location	Description	Date	Start Time	Duration (Min.)	L_{eq}	L_{01}	L_{10}	L_{50}	L_{90}	Comments
A (Outside)	35 ft. to Bancroft centerline at Berkeley Park Apts. Unit 225	5/31/95	1:30 pm	5:00	63	72	66	62	58	Traffic noise.
A1 (Inside)	35 ft. to Bancroft centerline at Berkeley Park Apts. Unit 225	5/31/95	1:40 pm	5:00	39	48	41	38	36	
1	On Kittridge outside Armstrong College (SW corner) at Post Office	5/31/95	2:50 pm	15:00	64	74	67	62	58	Kids leaving high school; traffic noise steady; typical daytime ambient.
2	100 ft. to Kittridge centerline at West Facade of Library	5/31/95	3:10 pm	15:00	57	64	59	46	54	Traffic noise.
3	30 ft. to Milvia Ave. centerline at Berkeley HS P.L.	6/2/95	10:40 am	15:00	63	71	66	61	55	Milvia traffic noise.
4	10 ft. to edge of McKinley at 2121 McKinley adjacent to Police Station	7/3/95	11:00 am	15:00	52	61	57	49	45	Distant traffic on Addison and birds are the major sources; very little traffic on McKinley.
5	10 ft. to edge of Addison adjacent to Institute of Buddhist Studies	7/3/95	11:42 am	15:00	62	73	65	56	53	Distant traffic from Martin Luther King Jr. Way is the major source (about 200 ft.); very little traffic on Addison.
6	10 ft. to edge of Center St. at Veteran's Memorial Bldg. (~300 ft. to Martin Luther King Jr. Way)	7/3/95	12:30 pm	15:00	61	74	63	57	52	Distant traffic on Martin Luther King Jr. Way and park activity at ~53 dBA are the major noise sources; traffic is light on Center St.
7	5 ft. to edge of Center St. at 1947 Center St. (~200 ft. to Milvia St.)	7/3/95	12:50 pm	15:00	61	71	63	57	54	Distant traffic on Milvia St. is the major noise source.

Source: Illingworth & Rodkin, Inc., 1995.

Civic Center Urban Design Plan

less than significant. No mitigation is proposed for this less than significant impact.

Impact I-CC-1: Noise generated during demolition and construction of buildings allowed under the *Civic Center Urban Design Plan* could potentially affect nearby sensitive receptors and adjacent offices. (S)

Noise would be generated during project-related demolition, site preparation and construction activities. Plan-related actions that involve substantial construction activity would include: demolition of existing buildings; clearing, grading and other site preparation; new construction; and seismic upgrade renovations. The significance of these construction noise impacts would depend on the type of construction activities and the proximity to noise-sensitive uses.

The highest project-related construction noise levels will be generated by demolition, excavation and building erection, all of which involve the use of heavy construction equipment. Although not specified in the plan or known yet with regard to specific projects (other than the Public Safety Building, discussed below), some building foundation construction could involve pile driving. In general, the highest construction period noise levels are generated by the use of heavy-duty construction equipment, such earth moving equipment (75 to 90 dBA at 50 feet) and pile driving (85 to 105 dBA at 50 feet). Other potentially significant noise would be generated by building activity (from hammering, sawing, use of impact wrenches, compressors, cement trucks, etc.) and by truck traffic to and from construction sites.

Average daily construction noise levels would fluctuate but, when measured at a distance of 50 feet from a construction site, would be about 75 to 85 dBA. Although construction noise impacts would be temporary, they would be a potentially significant impact.

> Mitigation Measure I-CC-1. Not all construction activities on all projects would result in significant impacts; therefore, a project-specific noise analysis should be performed for each individual development project envisioned under the plan. The noise analyses should predict noise impacts to nearby noise-sensitive land uses and identify mitigation measures to reduce significant noise impacts. Mitigation measures, such as those identified for the construction of the Public Safety Building (discussed below), should be implemented, depending on the incidence of noise impacts and extent of exposure to sensitive receptors. For any construction projects that involve pile driving, special mitigation measures should be examined to reduce the noise impacts. (LTS)

Public Safety Building

b. Public Safety Building. The Public Safety Building is one of the specific projects envisioned by the *Civic Center Urban Design Plan*. The plan was evaluated and found not to have any significant noise impacts associated with *land use compatibility* or *changes in traffic circulation*.

These findings also apply at the project-specific level to the Public Safety Building due to the fact that its operation will not change land uses on the site or add new traffic, but merely rearrange uses and access points within the block. However, the Public Safety Building could result in audible *nighttime noise from mechanical equipment* and could result in significant noise during *construction*. Each of these potential impacts is addressed below.

Impact I-PSB-1: The potential exists for roof-top mechanical equipment to generate audible noise during the night at nearby residences. (S)

Noise levels during the nighttime are estimated to be about 45 to 50 dBA at residences adjacent to the site. Mechanical equipment associated with the building could produce audible noise levels during the nighttime. Noise levels associated with this type of equipment depend on the equipment type, location, and shielding.

> Mitigation Measure I-PSB-1: Mechanical equipment should be selected and oriented such that noise levels at the nearest residences would not exceed 45 dBA. Ventilation exhaust apparatus should be oriented so that they face away from noise sensitive areas and providing adequate shrouding, shielding, and muffling around ventilation systems, including residences across Addison and McKinley. (LTS)

Impact I-PSB-2: Noise generated during demolition and construction of the Public Safety Building would result in daytime noise levels of 70 dBA or higher at nearby residences. (S)

During demolition of existing buildings, site preparation, excavation and construction of the Public Safety Building, intermittent noise increases would result from the operation of heavy equipment. The most noticeable noise would result from site grading. Construction noise levels would fluctuate depending on the phase of construction, equipment in use, and proximity between the noise sources and receptors.

Most construction noise sources would generate noise levels of about 75 to 85 dBA at a distance of 50 feet. However, certain types of earth moving equipment produce noise levels of about 85 to 90 dBA at 50 feet. Pile driving, which generates some of the highest noise levels, is not proposed as a

Public Safety Building

construction technique for this project. Truck traffic associated with construction activities would also add to the noise environment.

Approximately 20 residences are located within 100 feet of some portion of the project site. These residences would be exposed intermittently to daytime noise levels of 70 dBA or higher, with maximum noise levels approaching 80 dBA. Such noise levels would result in temporary disturbances (e.g., speech interference). Given the potential for high noise levels and the possibility that demolition, site grading, and building activities could occur over as long as a 12-month period, these noise levels would result in a significant adverse impact.

Mitigation Measure I-PSB-2: In order to reduce construction period noise impacts, mitigation measures identified below shall be implemented by all project contractors. These measures shall be included as part of any applicable construction contracts.

- Construction activities shall be limited to the hours of 7:00 AM to 5:00 PM weekdays.
- An 8-foot high plywood wall should be erected around the entire construction site.
- Ingress and egress to the site shall, to extent possible, occur from Martin Luther King Jr. Way and truck access to the site shall avoid streets in residential neighborhoods.
- All construction equipment shall be properly maintained and muffled.
- "Quiet Package" construction equipment (e.g., compressors and generators) shall be used to the greatest extent possible.
- Stationary noise-generating construction equipment such as air compressors shall be located as far as possible from nearby residences and shielded as much as practical. The equipment shall be shielded with temporary noise barriers (e.g., plywood).
- Unless otherwise necessary, heavy-duty construction equipment shall be staged on that portion of the site adjacent to Martin Luther King Jr. Way, which is furthest away from residences. Idling of this equipment shall be minimized.
- Neighbors within three blocks of the construction area shall be notified in writing of the construction schedule.
- A "noise disturbance coordinator" who would be responsible for responding to any local complaints regarding construction noise

Public Safety Building

shall be designated. This position could be held by the City's project manager, the on-site construction manager, or some other City representative. The coordinator would determine the cause of all complaints and would require that reasonable measures be implemented to lessen noise impacts. A telephone number of the noise disturbance coordinator shall be conspicuously posted at the construction site fence and on the notification sent to neighbors.

Even with these mitigation measures, adverse noise impacts are still likely to occur during the construction period, resulting in a significant unavoidable impact. (SU)

Chapter 5
ALTERNATIVES TO THE PROPOSED ACTIONS

■ ■ ■

CEQA Guidelines require the analysis of a range of alternatives to a proposed project, including a "no project" alternative. This analysis is intended to describe other feasible ways to achieve a proposed project's basic objectives, and to discuss, evaluate, and compare the potential environmental impacts of each. The discussion of alternatives need not be exhaustive, but it should provide decision makers and the public with the information needed to make an informed decision about whether to proceed with the proposed project or, instead, to choose an alternative course of action.

The analysis of each alternative must describe potentially significant impacts. This description can be less detailed than the description of impacts for the proposed plan or project. CEQA Guidelines require that the "environmentally superior" alternative be designated, but if the environmentally superior alternative is determined to be the no project alternative, another environmentally superior alternative also must be identified.

This chapter discusses feasible alternatives to both the *Civic Center Urban Design Plan* and to the Public Safety Building. Alternatives to each are described separately, beginning with the *Civic Center Urban Design Plan*.

A. Alternatives to the Civic Center Urban Design Plan

Civic Center Urban Design Plan

The proposed *Civic Center Urban Design Plan* is a plan for public actions within Berkeley's Civic Center. As described in Chapter 3 (p. 30), the Plan was developed through a community involvement process which considered a variety of options.

The following discussion of alternatives to the proposed *Civic Center Urban Design Plan* acknowledges that process and considers three main alternatives: (1) no *Civic Center Urban Design Plan* (the No Project alternative); (2) the reuse of existing buildings in the Civic Center planning area; and (3) the relocation of new public uses away from the residential neighborhood.

Civic Center Urban Design Plan

These alternative planning programs are described and evaluated below.

1. Civic Center Alternative CC-1. No Civic Center Urban Design Plan (No Project Alternative).

a. Description. Under this alternative, the City would not adopt the *Civic Center Urban Design Plan*. Future public improvements in the Civic Center would be solely guided by the *Downtown Plan* and the *Downtown Berkeley Public Improvements Plan*.

Under this alternative, the following actions would occur:

- The Public Safety Building would be built in the southwest corner of Martin Luther King Jr. Way and Addison Street, as currently proposed by the City and as currently proposed in the *Civic Center Urban Design Plan*.
- The Hall of Justice and the Fire Administration Building would be vacated once their uses were consolidated into the Public Safety Building, setting the stage for their demolition.
- The ultimate location for the Alameda County Courthouse would depend upon the decisions made solely by Alameda County. Currently, the county is considering two alternative sites: (1) at the intersection of Martin Luther King Jr. Way and Center Street (as proposed in the *Civic Center Urban Design Plan*); and (2) the site now occupied by the 2020 Kittredge Street Garage (Hink's Garage), a privately owned garage east of Milvia Street between Kittredge Street and Bancroft Way, adjacent to the Berkeley Public Library.
- The Martin Luther King Jr. Civic Center Building would be seismically upgraded, but would not be enlarged to accommodate City staff now occupying leased office space elsewhere in the downtown.
- The Berkeley Public Library would be seismically upgraded, and the facility would remain at its present size.
- The Veteran's Memorial Building might still undergo restoration and seismic improvement, but City programs and improvements related to the Addison Street Arts District might not be housed in this building.
- Old City Hall would continue in its current condition and with its current uses.

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- Martin Luther King Jr. Way Civic Center Park would not be improved, and the interface between the Martin Luther King Jr. Civic Center Building and the park would not be strengthened.
- No additional parking would be provided within the Civic Center.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. This alternative would be guided by the *Berkeley Master Plan* and the *Berkeley Downtown Plan*, and would be in general conformance with these plans. However, this alternative would forego the opportunity to strengthen the civic functions of the Civic Center, as is called for in both the *Berkeley Master Plan* and the *Berkeley Downtown Plan*.

Impacts related to the construction and operation of the proposed Public Safety Building would be identical to those of the proposed project. Land use impacts to the residential properties north of Addison Street would be identical to those of the proposed project.

Consolidation of the police and fire functions now housed in the Hall of Justice and the Fire Administration Building into the proposed Public Safety Building would strengthen the connection of these two civic functions with the rest of the Civic Center, as in the proposed project. This consolidation would also lessen the impacts that the residences west of McKinley Avenue now experience as a result of the proximity of these two buildings.

There are several impacts that might result from the construction and operation of a new County Courthouse. If the new courthouse were built on the site east of Martin Luther King Jr. Way at Center Street, as in the proposed project, it would tend to strengthen the civic functions of the Civic Center and retain this function in the Civic Center. Land use impacts to the residential properties north of Addison Street likely to ensue from the construction of the County Courthouse at this location would be identical to those of the proposed project. On the other hand, if the courthouse were built on the site west of the Berkeley Main Library, or perhaps to some other site in the Civic Center or elsewhere, civic functions would be weakened, but land use impacts to the residential properties north of Addison Street likely to result from the construction of the County Courthouse at this location would be eliminated.

Seismic improvement of the Martin Luther King Jr. Civic Center Building would allow the civic functions in that building to remain. However, the

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opportunity to strengthen its role as a key element of the Civic Center fabric would be lost, and the potential connections between the building and Martin Luther King Jr. Park would not be enhanced.

This alternative would not result in the expansion of the City-owned parking structure on Center Street east of Milvia Street, nor in the construction of a parking structure on Milvia Street between Kittredge Street and Bancroft Way. As a result, consolidated parking in the Civic Center would not be increased and the commercial uses on these sites would not be removed.

(2) Urban Design. This alternative would generally be in conformance with the plans and policies of the City as contained in the *Berkeley Master Plan* and the *Berkeley Downtown Plan*. Projects would be reviewed at the time specific proposals are made, and would be subject to design review at that time. However, no urban design plan would guide the evaluation of such projects. For this reason, it is expected that the development of the Civic Center would not occur as cohesively and sensitively as it would with implementation of the *Civic Center Urban Design Plan*.

(3) Historic Resources. The construction of the Public Service Building would result in the vacation of the Hall of Justice and the Fire Administration Building, setting the stage for their demolition. These buildings are not significant historical resources.

If the new County Courthouse were constructed at the corner of Martin Luther King Jr. Way and Center Street, as in the proposed project, impacts to the Framat Lodge and the residential building at 1907 Center Street would be identical to those in the proposed project. If the existing County Courthouse were demolished once it was replaced, the building would be lost. This building is not a significant historical resource, however.

As there would be no additions to or renovations of the Martin Luther King Jr. Civic Center Building except for seismic upgrading, there is the potential for less disruption to the historic character of the building. Without the expansion of the building, the potential for the future improvement of the relationship between the building and Martin Luther King Jr. Park likely would not occur, but neither would the potential to improve this relationship in the future be foreclosed.

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(4) Public Services and Infrastructure. The levels of development and use under this alternative would be the same as for the proposed project, although they could be somewhat more broadly dispersed throughout the downtown. In sum, impacts to public services and infrastructure would not vary substantially from those for the proposed plan.

(5) Geology and Seismicity. This alternative includes the seismic upgrading of the same structures as in the proposed project. Impacts would not vary substantially from those for the proposed project.

(6) Hazardous Materials. Hazardous materials impacts would be identical to those for the proposed project.

(7) Transportation, Circulation, and Parking. Four potential transportation-related impacts could result from the implementation of this alternative.

(a) Location of County Courthouse. Without the encouragement provided by the *Civic Center Urban Design Plan* to locate the new County Courthouse on the Center Street site, it is possible—perhaps even likely—that the County would chose another location in downtown Berkeley. The Hink's garage site near Milvia (between Kittredge Street and Bancroft Way) is one possibility. In the event that this site is selected, parking for the courthouse would probably be provided on-site as opposed to near the Addison Street garage, making it less centrally located. Its location at the Hink's garage site would probably have a higher likelihood of being unavailable to the general public, as opposed to the Addison Street site which is intended in the *Civic Center Urban Design Plan* to supplement the total public supply of parking for both Courthouse users and the general public.

(b) Trips Between the Courthouse and Public Safety Building. Some Public Safety Building employees having business at the Courthouse (or County employees making trips to the Public Safety Building) would have to walk a greater distance if the Hink's garage site were chosen for the location of the Courthouse. Some pedestrian trips would also become vehicle trips.

(c) Traffic-Generating Special Events. Without the proposed plan's emphasis on preserving and using the Veteran's Building, this alternative could result in a decrease in the likelihood of high traffic-generating special events at the Veterans' Building and/or the Martin Luther King Jr. Civic Center Park.

Civic Center Urban Design Plan

(d) Parking. Without the proposed plan's provision of additional parking on the Public Safety Building block, the 44 spaces lost due to the construction of the Public Safety Building would effectively become a permanent condition.

(8) Air Quality. The potential effect of creating longer trips between the Public Safety Building and the County Courthouse (if it were to be located at the Hink's Garage site), leading to a greater number of vehicular trips in the downtown area, could slightly increase air emissions. However, the potential reduction in total parking provided could reduce overall vehicular trips if drivers were to switch to any of several modes of public transit. Neither
change would represent a substantial difference when compared to either the existing condition or the proposed project.

(9) Noise. Like air quality, traffic-generated noise exposure throughout the Civic Center could change slightly in the event that the proposed plan's influence on development locations were absent. However, any resulting change would not be measurable. Construction period noise exposure could shift somewhat away from those locations emphasized in the proposed plan toward other potential locations.

c. Reasons for Rejection. The No Project alternative would not meet any of the City's goals for the Civic Center as expressed in the *Berkeley Master Plan*, the *Berkeley Downtown Plan* or the *Civic Center Urban Design Plan* (see Chapter 3, p. 31 of this EIR).

2. Civic Center Alternative CC-2. Reuse of Existing Buildings Within the Civic Center.

a. Description. Under this alternative, the City would work to establish a strong Civic Center, but would not build new structures to house civic uses. Instead, civic uses would be housed in existing buildings within the Civic Center. Future public improvements in the Civic Center would be guided solely by the *Downtown Plan* and the *Downtown Berkeley Public Improvements Plan*.

Under this alternative, the following actions would occur:

- The proposed Public Safety Building would not be built.
- The Hall of Justice and the Fire Administration Building would be seismically upgraded and the structures would be rehabilitated, in order to allow them to continue to house their current functions.

- The ultimate location of the Alameda County Courthouse would depend upon the decisions made by Alameda County. As noted under Alternative CC-1, the county is considering two alternative sites.
- The Martin Luther King Jr. Civic Center Building would be demolished, and the functions of the building would be housed in Old City Hall.
- Old City Hall would be seismically upgraded, and the two wings originally designed as part of the building would be added, so that Old City Hall could accommodate all City government functions, including those functions now housed in the Martin Luther King Jr. Civic Center Building.
- The Berkeley Public Library would be seismically upgraded. Expansion of the facility would be accommodated in existing development adjacent or nearby.
- The Veteran's Memorial Building might still undergo restoration and seismic improvement, but City programs and improvements related to the Addison Street Arts District might not occur in this building.
- Martin Luther King Jr. Way Civic Center Park would be improved, as part of the demolition of the Martin Luther King Jr. Civic Center Building.
- No additional parking would be provided within the Civic Center area.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. This alternative would be guided by the plans and policies of the City as contained in the *Berkeley Master Plan* and the *Berkeley Downtown Plan*, and would be in partial conformance with these plans. At least some of the goals and policies of these plans could be achieved, but not in the cohesive manner envisioned by the *Civic Center Urban Design Plan*.

The impacts related to the construction and operation of the proposed Public Safety Building would be eliminated under this alternative.

Retaining the current functions of the Hall of Justice and the Fire Administration Building would continue the present impacts that the neighborhoods west of McKinley Avenue now experience as a result of the proximity of these two buildings.

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As with the first alternative, there are several impacts that might ensue from the construction and operation of a new Alameda County Municipal Courthouse. If the new courthouse were built on the site east of Martin Luther King Jr. Way at Center Street, as in the proposed project, it would tend to strengthen the civic functions of the Civic Center and retain this function in the Civic Center. Land use impacts to the residential properties north of Addison Street would be identical to those of the proposed project. On the other hand, if the courthouse were to be located on the site west of the Berkeley Main Library, or perhaps on some other site in the Civic Center or elsewhere, civic functions would be weakened, but land use impacts to the residential properties north of Addison Street would be eliminated.

Demolition of the Martin Luther King Jr. Civic Center Building would move the functions now housed in that building into a seismically upgraded and renovated Old City Hall. This has the potential to allow the civic functions of Martin Luther King Jr. Park to be strengthened as part of the demolition of the Civic Center Building.

This alternative would not result in the expansion of the City-owned parking structure on Center Street east of Milvia Street, nor in the construction of a parking structure on Milvia Street between Kittredge Street and Bancroft Way. As a result, parking in the Civic Center would not be increased, but the commercial uses on these sites would not be removed.

(2) Urban Design. This alternative would be in partial conformance with the plans and policies of the City as contained in the *Berkeley Master Plan* and the *Berkeley Downtown Plan*.

The renovation of Old City Hall and the construction of its original wings and the new County Courthouse, if it is located at the corner of Martin Luther King Jr. Way and Center Street, both have the potential to strengthen the urban design qualities of the Civic Center, especially if coupled with the renovation of Martin Luther King Jr. Park as part of the demolition of the Civic Center Building.

Demolition of the Civic Center Building has the potential to expose the buildings east of Milvia Street to view from the park and to make them a part of the line of buildings that surround the park. This includes the YMCA, which is generally of a design character similar to the buildings that now face the park, but also includes a number of other buildings that are substantially dissimilar in design. Without sensitive design of the renovated park, these incongruous buildings will introduce a distracting element to the generally

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unified grouping of buildings surrounding the park, and have the potential to result in some loss to the urban design cohesion of the Civic Center.

(3) Historic Resources. The renovation of Old City Hall with its original wings, if carefully designed and constructed, has the potential to strengthen that historic building and it to return it to its original civic functions.

If the new County Courthouse were constructed at the corner of Martin Luther King Jr. Way and Center Street, as in the proposed project, impacts to the Framat Lodge and the residential building at 1907 Center Street would be identical to those of the proposed project.

Demolition of the Martin Luther King Jr. Civic Center would result in the loss of this City Landmark.

(4) Public Services and Infrastructure. The levels of development and use under this alternative would be similar to the proposed project. As a result, the impacts to public services and infrastructure would not vary substantially from those for the proposed project.

(5) Geology and Seismicity. Under this alternative, the seismically unsafe Martin Luther King Jr. Civic Center Building would be demolished. Its functions would be housed in a seismically strengthened Old City Hall. All other impacts of this alternative would be similar to those of the proposed project.

(6) Hazardous Materials. Hazardous materials impacts would be identical to those for the proposed project.

(7) Transportation, Circulation, and Parking. Six potential transportation-related impacts could result from the implementation of this alternative.

(a) Parking. Absent the construction of the Public Safety Building, the 44 lost parking spaces would remain.

(b) Trips Along McKinley. Vehicular and pedestrian trips which currently occur along McKinley Avenue would continue and would not be reduced or redirected as they would under the proposed plan.

(c) Courthouse on the Hink's Site. Effects #1 and #2 under Alternative CC-1 would apply to this alternative as well.

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(d) Pedestrian Trips Along Allston Way and Center Street. Relocation of City administration activities to the Old City Hall on Martin Luther King Jr. Way would increase pedestrian trips along Allston Way and Center Street, assuming that some employees were to park in downtown garages.

(e) Employees Parking in Residential Permit Parking Zone. The likelihood that some City employees would park in permit parking zones adjacent to Old City Hall would increase, due to the consolidation of all City administration uses in this building.

(f) Traffic-Generating Special Events. Without the proposed plan's emphasis on preserving and using the Veteran's Building, this alternative could result in a decrease in the likelihood of high traffic-generating special events at the Veterans' Building and/or the Martin Luther King Jr. Civic Center Park.

(8) Air Quality. The long-term air quality effects of this alternative would not be substantially different from either existing conditions or the proposed plan. Construction period emissions including fugitive dust would change on a site-specific basis, but would not vary substantially on an areawide basis.

(9) Noise. The noise effects of this alternative would not be substantially different from either existing conditions or the proposed plan. Construction period noise would be experienced differently on a site-specific basis, but would not vary substantially on an areawide basis.

c. Reasons for Rejection. While this alternative could be consistent with the *Berkeley Master Plan* and the *Berkeley Downtown Plan*, it would not accomplish the City's goals of clarifying civic identity and character, creating a "great public room" in the Civic Center, or improving the relationship between the Civic Center and adjacent districts.

3. Civic Center Alternative CC-3. Development Away from the Residential Neighborhoods

a. Description. One characteristic of the proposed project that leads to potential environmental impacts is the proximity of development under the plan to the adjacent residential neighborhood to the west across McKinley Avenue and east across Addison Street. Under this alternative, the City would work to establish a strong Civic Center, but would locate planned new public facilities away from adjacent neighborhoods.

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Under this alternative, the following actions would occur:

- The Public Safety Building would be accommodated within a new building replacing the Martin Luther King Jr. Civic Center Building.
- The Hall of Justice and the Fire Administration Building would be vacated, setting the stage for their demolition.
- The choice for the location of the Alameda County Courthouse between the two alternative sites would depend upon the decisions made by Alameda County.
- The Martin Luther King Jr. Civic Center Building would be demolished, and replaced by a new Civic Center Building that would accommodate the current functions of the building, the public uses now dispersed in private space elsewhere in the downtown, and the police and fire functions now planned for the proposed Public Safety Building.
- The Berkeley Public Library would be seismically upgraded, and any expansion of the facility would be accommodated west of the present facility.
- The Veteran's Memorial Building might still undergo restoration and seismic improvement, but that City programs and improvements related to the Addison Street Arts District might not occur in this building.
- Old City Hall would continue to house the functions of the Berkeley Unified School District (BUSD).
- Martin Luther King Jr. Way Civic Center Park would be improved as part of the construction of the building that would replace the Martin Luther King Jr. Civic Center Building and the construction of a consolidated parking facility under the park. The interface between the new Civic Center Building and the park could be strengthened and the park could be renovated and restored.
- Parking for police, fire, other City uses, and the County Courthouse would be provided in a consolidated parking facility built under Martin Luther King Jr. Park.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. Prior to assembling a development program for a new, consolidated Civic Center Building and underground parking structure, and sketching the resulting possibilities for structural massing on the site, it is difficult to draw a conclusion about the conformance of this alternative with the plans and policies of the City as contained in the *Berkeley Master Plan* and the *Berkeley*

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Downtown Plan. One of the major questions of such a concentration of space and activities on the site is whether a building to enclose the entire program would be able to meet limits on heights and setbacks and yet still allow for reestablishment of a park of appropriate size and design.

On the other hand, impacts resulting from the construction and operation of the Public Safety Building near the existing residential neighborhood would be reduced under this alternative.

Consolidation of the Hall of Justice and the Fire Administration Building functions into the new Civic Center Building also would lessen the present impacts that the neighborhoods west of McKinley Avenue experience as a result of the proximity of these two buildings.

As with the first two alternatives, there are several impacts that might result from the construction and operation of a new County Courthouse. If the new courthouse were built on the site east of Martin Luther King Jr. Way at Center Street, as in the proposed project, it would tend to strengthen the civic functions of the Civic Center and retain this function in the Civic Center. Land use impacts to the residential properties north of Addison Street would be similar to those of the proposed project. On the other hand, if the courthouse were built on the site west of the Berkeley Main Library, or some other site in the Civic Center, civic functions would be weakened, but land use impacts to the residential properties north of Addison Street would be reduced.

Replacement of the Martin Luther King Jr. Civic Center building with a new Civic Center Building housing all City functions, including the police and fire operation now proposed for the Public Safety Building, would retain these civic functions in the Civic Center. If the development program needed to house all of these civic activities in one building could be accommodated on this site, then implementation of this alternative also has the potential to strengthen the civic functions of Martin Luther King Jr. Park through its renovation and redesign.

(2) Urban Design. To an even greater extent than would be the case for land use issues (as described above) the conformance of this alternative with the *Berkeley Master Plan* and the *Berkeley Downtown Plan* in urban design terms will revolve initially around the height, bulk and massing of the Civic Center Building necessitated by its large number of uses and activities.

The development of a new Civic Center Building to replace the Martin Luther King Jr. Civic Center Building has the potential to strengthen the urban

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design qualities of the Civic Center, especially if coupled with a renovation of Martin Luther King Jr. Park.

(3) Historic Resources. Demolition of the Martin Luther King Jr. Civic Center would result in the loss of this City Landmark. Its loss could be somewhat mitigated, however, through sensitive design of the new Civic Center Building and the sensitive restoration of the park.

If the new County Courthouse were constructed at the corner of Martin Luther King Jr. Way and Center Street, as in the proposed project, impacts to the Framat Lodge and the residential building at 1907 Center Street would be identical to those of the proposed project. If the existing County Courthouse were demolished once replaced, the building would be lost, but it is not a significant historical resource.

(4) Public Services and Infrastructure. The levels of development and use under this alternative would be the same as for the proposed project, and the impacts to public services and infrastructure would be more or less the same. It is possible that some site-specific infrastructure and utility impacts could result from the expansion of activities at the Civic Center Building site, but these design issues would not be expected to pose insurmountable roadblocks to its accomplishment.

(5) Geology and Seismicity. Under this alternative, the seismically unsafe Martin Luther King Jr. Civic Center Building would be demolished and replaced by a new, seismically safe building. All other impacts of this alternative would be identical to those of the proposed project.

(6) Hazardous Materials. Hazardous materials impacts would be similar to those of the proposed project.

(7) Transportation, Circulation, and Parking. Four potential transportation-related impacts could result from the implementation of this alternative.

(a) Parking. Because the Public Safety Building would be built on the City Administration building site, the 44 spaces that would be lost if the Public Safety Building were built on the proposed site could remain.

(b) County Courthouse on the Hink's Site. Effects #1 and #2 under Alternative CC-1 would apply to this alternative as well.

(c) Traffic-Generating Special Events. Without the proposed plan's emphasis on preserving and using the Veteran's Building, this alternative could result in a decrease in the likelihood of high traffic-generating special events at the Veterans' Building and/or the Martin Luther King Jr. Civic Center Park.

(d) Parking Under the Park. The net new parking effects would probably be similar to the proposed plan, but the location of the parking in this alternative—under the Civic Center Park—would draw vehicle trips into the Civic Center, causing greater traffic congestion than in the proposed plan. Such congestion could offset the positive effects of pedestrian enhancements and improvements that are underway or proposed.

(8) Air Quality. Increased traffic and congestion would have an adverse effect on air quality. The magnitude of the effect, however, would not be significant under CEQA.

(9) Noise. Increased traffic and congestion could lead to somewhat greater traffic-generate noise levels. The magnitude of the effect, however, would not be significant under CEQA.

c. Reasons for Rejection. This alternative has been rejected for four reasons: (1) it would cause the demolition of the Martin Luther King Jr. Civic Center, a City Landmark; (2) it would require the construction of a very large building that would be inconsistent with the *Berkeley Downtown Plan* height guidelines and could adversely affect the Civic Center Park; (3) meeting the functional needs of the Public Safety Building in a new combined Civic Center Building would be difficult and would add unnecessary costs to the rest of such a structure; and (4) the structured underground parking under Civic Center Park is likely to be infeasible due to its high cost.

B. Alternatives to the Public Safety Building

Public Safety Building

The Public Safety Building project is a proposal to develop a facility to combine Police and Fire Department operations into a single facility. The alternatives considered below have been formulated by varying the building's design characteristics or proposed site location. Those alternatives are of two types: two are presented in sufficient detail to allow them to be adopted by the City Council should it choose to do so. They are "full alternatives" in that sufficient definition and analysis is presented in comparison to the proposed project evaluated throughout the rest of this DEIR (which includes a parking structure) to differentiate the impacts and mitigations between the proposed

Public Safety Building

project and the "full alternatives". Should the Council choose to adopt either of these alternatives, no further environmental review would be necessary.

Three other "conceptual" alternatives are also presented in conformance with the requirement of CEQA that alternatives be considered. Should the Council choose to pursue these conceptual alternatives, additional detailed environmental review would be necessary.

The two "full" alternatives include the following:

1. The "Stern/Surface Parking" alternative. This alternative combines the most recent facade design with a surface parking option on the site of the existing Hall of Justice and Fire Administration building which are to be demolished. The surface parking alternative was found to be the most financially feasible option available. The Stern design alternative received the preliminary endorsement of the City Council in February, 1997. As of this writing this alternative should be considered the "preferred alternative."

2. The "Limited Parking" alternative. During earlier work on this EIR, it was thought that insufficient funds were available to demolish the Hall of Justice and Fire Administration Building and replace them with surface parking. Accordingly, a limited surface parking (20 spaces) alternative was fully evaluated with the parking to be located directly behind the proposed Public Safety Building. To give the Council a full range of choices, this option is presented in the alternatives section (if insufficient funding is available to complete the demolition of the Hall of Justice and Fire Administration Building, or to replace them with parking, this alternative may be a necessary option).

The "conceptual" alternatives to the proposed Public Safety Building include:

3. The seismic upgrading and renovation of the Hall of Justice and the Fire Administration Building, and their continued use in their current functions in lieu of construction of the Public Safety Building (the No Project alternative.

4. The construction of the proposed Public Safety Building at its current proposed location at the corner of Martin Luther King Jr. Way and Addison Street, but with its primary access restricted to Martin Luther King Jr. Way opposite Center Street; and

Public Safety Building

5. The accommodation of the functions planned for the proposed Public Safety Building within a new Civic Center Building to replace the Martin Luther King Jr. Civic Center Building.

The following describes and evaluates alternatives to the proposed Public Safety Building.

1. Public Safety Building Alternative PSB-1. Construction of the Public Safety Building as proposed, but with a revised facade and surface parking.

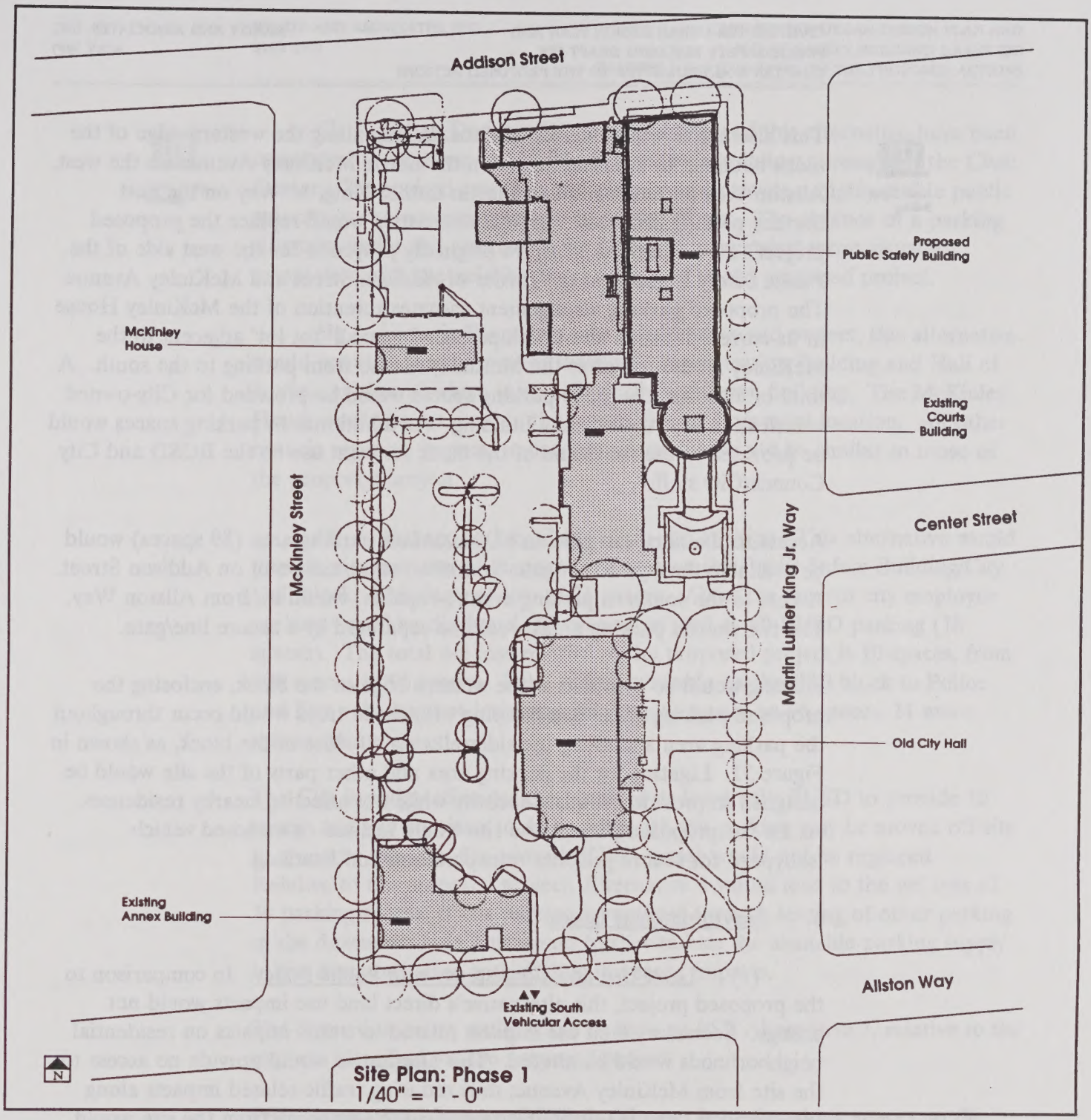
a. Description. This alternative, referred to as the Stern/Surface Parking alternative, was developed after the City Council rejected all previous facade designs for the Public Safety Building. The City Council selected architect Robert A.M. Stern to lead an intensive design process. During January and February of 1997, a new facade was designed by Stern's firm, and received the preliminary endorsement of the City Council in February 1997.

While the Stern redesign process was taking place, City staff determined that the proposed 80-space parking structure, described as the "proposed project" in the body of this EIR, could be cost prohibitive. Staff therefore identified a "surface parking" alternative for the existing Hall of Justice and Fire Administration Building sites. This potential surface parking area would become available after demolition of these two structures.

The Stern/Surface Parking alternative combines the revamped facade design with the surface parking alternative as shown in Figure 31. This alternative's variations from the proposed project addressed throughout Chapter 4 of this EIR are described below.

The most noticeable difference between this alternative and the proposed project can be found in the facade treatment of the Public Safety Building. This alternative includes design elements which relate to the context of the historic buildings in the civic center area. The height, bulk, and square footage of the proposed project would be unchanged under this alternative. In addition to facade changes, the main entrance to the building would be reoriented under this alternative. The main entrance would face southeast from a public plaza that would be developed at the south end of the building, directly west from the termination of Center Street.

The overall Public Safety Building would remain roughly within the footprint of the proposed project. However, the public plaza at its entrance and at the terminus of Center Street would extend farther southward by about 20 to 30 feet.



BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 31
STERN/SURFACE PARKING ALTERNATIVE

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Public Safety Building

This alternative would include surface parking along the western edge of the block bounded by Addison Street on the north, McKinley Avenue on the west, Allston Way on the south, and Martin Luther King, Jr. Way on the east. Surface parking proposed with this alternative would replace the proposed project's 80-car parking structure originally proposed for the west side of the Public Safety Building at the corner of Addison Street and McKinley Avenue. The proposed parking arrangement assumes retention of the McKinley House in its current location and development of a small "tot lot" adjacent to the McKinley House to buffer the McKinley House from parking to the south. A total of 89 secure, at-grade parking spaces would be provided for City-owned vehicles for the Public Safety Building. An additional 14 parking spaces would be provided at the south end of the block for joint use by the BUSD and City Council/City staff.

Access to the northern portion of the surface parking area (89 spaces) would be available through a new gate-controlled entry/exit point on Addison Street. Access to the southern parking area (14 spaces) would be from Allston Way. The two on-site parking areas would be separated by a secure line/gate.

Fencing would be provided at the western edge of the block, enclosing the proposed parking area. Landscaping with shade trees would occur throughout the parking area and along the sidewalks on all sides of the block, as shown in Figure 31. Lighting for the parking area and other parts of the site would be designed to provide adequate security while not affecting nearby residences. As for the proposed project, the site would include an enclosed vehicle "sallyport" for secure prisoner transportation and handling.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. In comparison to the proposed project, this alternative's direct land use impacts would not change. Secondary land use impacts related to traffic impacts on residential neighborhoods would be altered. This alternative would provide no access to the site from McKinley Avenue, thus reducing traffic-related impacts along this corridor. The majority of cars coming to and going from the site would use Addison Street and Martin Luther King Jr. Way.

Unlike the proposed project, the McKinley House would be retained under this alternative. This alternative would include the provision of a tot lot adjacent to the McKinley House which would be restricted for use by McKinley House residents only.

All other land use impacts would be the same as for the proposed project.

Public Safety Building

(2) Urban Design. The facade changes of this alternative have been completed to be more compatible with historic buildings throughout the Civic Center. The revised entrance and plaza would provide a highly-visible public amenity at the western terminus of Center Street. The absence of a parking structure under this alternative would result in a project more visually compatible with the neighborhood compared to the proposed project.

(3) Historic Resources. As for the proposed project, this alternative would result in the removal of the Fire Administration Building and Hall of Justice, neither of which is an historically-significant building. The McKinley House would be retained in this alternative in its present location. All other historic resource impacts under this alternative would be similar to those of the proposed project.

(4) Transportation, Circulation, and Parking. This alternative would provide a grand total of 96 parking spaces on the Public Safety Building/City Hall block. This is a net loss of 71 spaces. All of the current city employee parking would be displaced (60 spaces), as well as all BUSD parking (18 spaces). The total net loss relative to the proposed project is 10 spaces, from 106 spaces to 96 spaces. Total spaces available on the PSB block to Police and Fire vehicles (not including employees), would be 96 spaces, 14 more spaces than today.

The City is obligated under the terms of its lease with BUSD to provide 12 spaces and will continue to do so, although the parking may be moved off-site to a nearby location. Six current BUSD spaces would not be replaced. Relative to the proposed project, Alternative 1 would lead to the net loss of 10 parking spaces. If this parking is replaced through leasing of other parking in the downtown area, this would further reduce the available parking supply in the downtown area with slightly increased impacts.

The discussion below outlines the impacts of PSB Alternative 1, relative to the impacts identified for the proposed project.

PSB Alternative 1 Impact G-PSB-1: The net loss of parking spaces on the project block would grow from 61 spaces (proposed project) to 71 spaces (PSB Alternative 1)—a loss of ten additional spaces. (S)

PSB Alternative 1 Mitigation Measure G-PSB-1: The measures outlined in Chapter 4 for the proposed project (G-PSB-1) will continue to apply and will need to address the increased need resulting from the net loss of 10 additional spaces. As with the proposed project, the net parking loss would remain a significant impact. (SU)

Public Safety Building

PSB Alternative 1 Impact G-PSB-2: The small change in total parking supply on the project block will produce negligible changes in traffic patterns and local intersection service levels, relative to the proposed project. (LTS)

With PSB Alternative 1, the Police/Fire Department on-site parking supply increases by 14 spaces relative to the proposed project (from 82 to 96 spaces). However, the parking supply for BUSD and permit holders at the southwest corner of the project block is eliminated for a net reduction of ten spaces on the project block relative to the proposed project. Because the Addison Street entrance to the Public Safety Building parking lot will be the primary entrance, the number of vehicles entering and exiting via Addison Street would grow slightly under Alternative 1 due to the higher number of parking spaces. An estimated three to four additional vehicles would use this entrance during the PM peak hour. This change in traffic volume would not change the LOS results reported for the preferred project. Traffic using the driveway on Allston Street would probably decrease during the PM peak hour, reflecting the 12-space reduction in parking in the southwest corner of the block. The prisoner-transfer buses which would use the Allston entrance under Alternative 1 would not create a net increase in driveway volume at this location.

PSB Alternative 1 Impact G-PSB-3: A slight increase in walking trips to/from the BUSD offices near Allston Way may occur due to the loss of on-site parking on the southwest corner of the project block. Walking trips near the Addison Street entrance to the Public Safety Building may decrease slightly, relative to the preferred project, due to the greater number of on-site parking spaces with Alternative 1. (LTS)

The loss of 18 on-site parking spaces reserved for BUSD may increase local employee and/or visitor walking trips, relative to the proposed project, as drivers would need to find off-site parking. This level of additional pedestrian activity would be negligible relative to the prevailing level of pedestrian activity in the area. Similarly, the change in walking trips along Addison Street would be negligible relative to the proposed project.

Impacts of this alternative in the following areas would be the same as those of the proposed project: public services and infrastructure; geology and seismicity; hazardous materials; air quality; and noise.

c. Reasons for Rejection. The Stern/Surface Parking alternative is analyzed here in Chapter 5 not because it has been considered and rejected, but because it arose late in the environmental review process. As noted above, it should be considered the "preferred alternative". It differs from the proposed project analyzed throughout this EIR in terms of its parking supply

and site plan for parking, and the building's facade and public plaza at its entrance.

2. Public Safety Building Alternative PSB-2. Construction of the Public Safety Building as proposed, but with limited (20 spaces) parking.

a. Description. This alternative, referred to as the "Limited Parking" alternative, was developed because the City has determined that funding may not be available to demolish the Hall of Justice and Fire Administration Building and to provide surface parking in the location of these two buildings (see Figure 32). Thus, this alternative includes the provision of 20 surface parking spaces (60 fewer spaces than the proposed project) directly west of the Public Safety Building. Access to the 20 surface parking spaces would be from McKinley Street at the middle of the block between Allston Way and Addison Street.
This access would be for one-way ingress, with egress at the north end of the block on Addison Street.

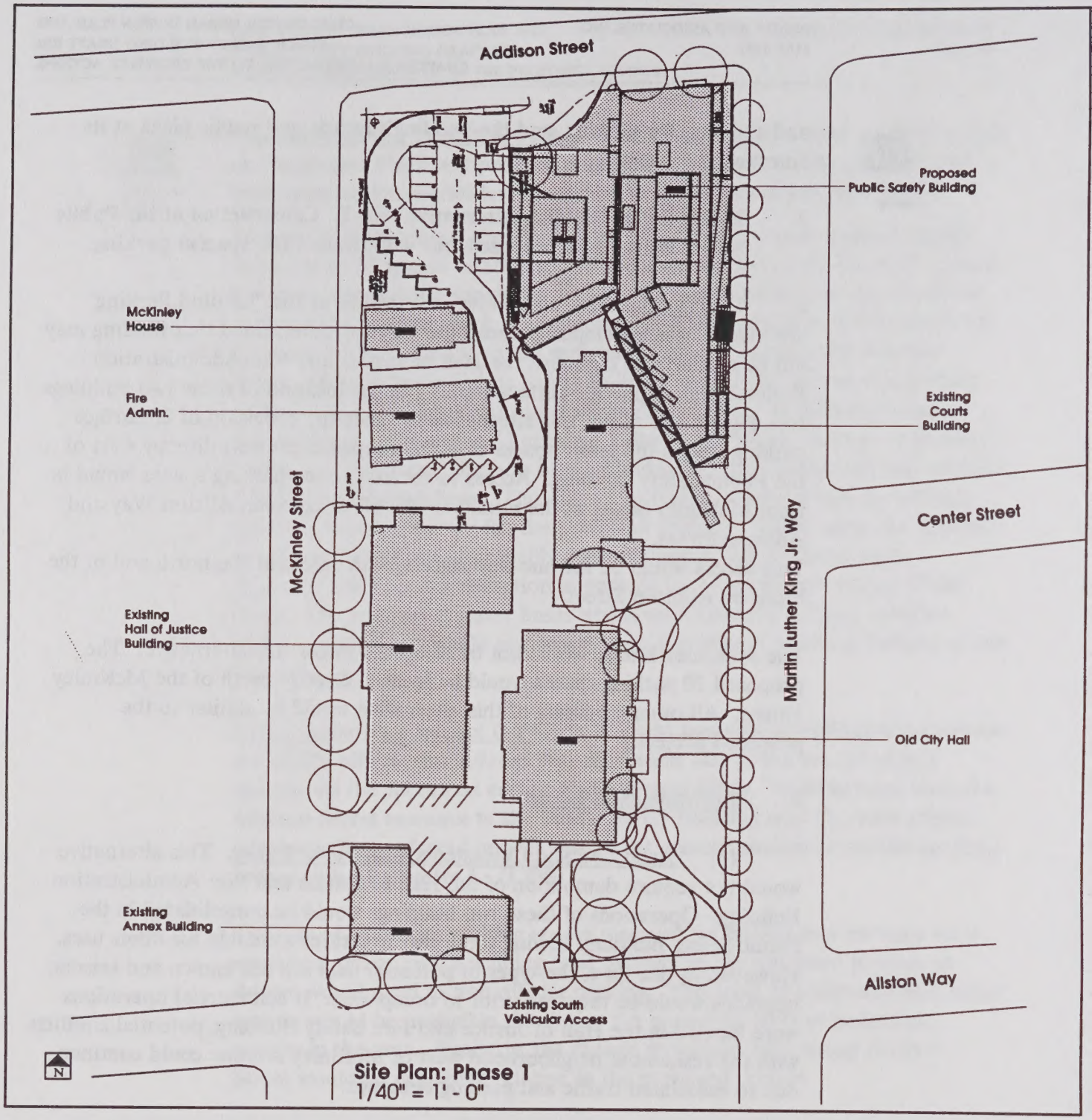
The McKinley House would not be relocated under this alternative. The proposed 20 parking spaces would be located directly north of the McKinley House. All other elements of this alternative would be similar to the proposed project.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. This alternative would not require demolition of the Hall of Justice and Fire Administration Building. Operations of these two buildings would be consolidated in the Public Safety Building, leaving these two structures available for other uses. However, at this time, the types of potential uses are not known and seismic upgrades would be required prior to occupation. If commercial operations were located in the Hall of Justice and Fire Safety Building, potential conflicts with the residential neighborhood west of McKinley Avenue could continue due to associated traffic and parking demands.

In comparison to the preferred project, this alternative would require demolition permits for only one building instead of three.

(2) Urban Design. Retention of the Hall of Justice and the Fire Administration Building could result in a conflict with the *CCUDP*'s urban design objectives. Without demolition of these two buildings, an opportunity may be lost to create a stronger design unity and integrity between Old City Hall and the Public Safety Building. The designs of the Hall of Justice and



BERKELEY CIVIC CENTER

URBAN DESIGN PLAN & PUBLIC SAFETY BUILDING
ENVIRONMENTAL IMPACT REPORT

FIGURE 32
LIMITED PARKING ALTERNATIVE

BRADY AND ASSOCIATES
PLANNERS AND LANDSCAPE ARCHITECTS

Public Safety Building

the Fire Administration Building do not relate to the strong design character of Old City Hall. However, this potential impact would be less than significant.

(3) Historic Resources. Neither the Hall of Justice nor the Fire Administration Building was found eligible for listing on the *National Register.* No significant impacts related to historic resources would occur under this alternative.

(4) Transportation, Circulation and Parking. The primary distinction of this alternative from the proposed project would be the loss of 60 on-site parking spaces. While the proposed project would provide 80 parking spaces on the developed site, Alternative 2 would provide only 20 parking spaces. This difference would affect primarily parking and pedestrian impacts; the traffic impact would not change significantly nor would the construction impact. The discussion below outlines the impacts of Alternative 2, relative to the impacts identified for the proposed project.

PSB Alternative 2 Impact G-PSB-1: The loss of parking spaces would grow from 61 spaces (proposed project) to 104 spaces (Alternative 2)—a loss of 43 additional spaces. However, this incremental loss does not equal the 60 fewer spaces on the developed site, because this alternative would retain 17 spaces adjacent to the current Hall of Justice which would be lost with the proposed project. (S)

The 43 additional spaces which would be lost under Alternative 2 represent the North McKinley parking lot spaces that the proposed project would replace (through the development of a new 80-space parking lot on the site), but which this alternative would not replace. These parking spaces are currently used by the Police and Fire Departments, and their loss would result in the need for additional off-site parking.

The proposed project results in a net gain of one parking space for the police/ fire departments. Thus, Alternative 2 results in a net loss of 42 spaces. This represents 34 percent of the current total parking supply available to the departments. The City has been working with the Police and Fire Departments to identify replacement parking for employees and official vehicles, should Alternative 2 be chosen. The options include the re-design of McKinley between Addison and Allston to provide more on-street parking (angled spaces with one-way circulation); reservation of public garage space in the downtown area; procurement of off-street private parking; and valet-parking or "stacking" vehicles on-site.

Public Safety Building

The re-design of McKinley could provide an additional 18 spaces through conversion to angled parking along the east side, with one-way southbound circulation. Currently, this block of McKinley provides 19 residential permit 'C' spaces (limited to two-hour parking without a permit), 11 one-hour meters, six 30-minute meters, and one disabled parking space. The permit spaces would remain with the re-design, and the closure of the two Police Department driveways on the east side of McKinley would provide space for an additional six angled parking spaces, for a total of 24 new spaces. If these spaces were designated for Police/Fire Department use, the existing 18 public metered spaces would be lost. However, the relocation of the departments to the Public Safety Building would focus primary pedestrian access along Addison and Martin Luther King Jr. Way, where there are metered spaces that visitors could use.

The City's preliminary concept plan for additional parking also showed that an additional 13 spaces could be provided on Grant Street with conversion to one-way northbound travel and angled parking on the east side. However, this would result in the loss of permit parking which has traditionally been available to residents of the area.

Reservation of public or private off-street parking would reduce by 42 spaces the total supply available to drivers in the downtown. However, this is not likely to cause an overall parking deficit, based on the large parking supply in the downtown and current occupancy levels.

Any valet parking of vehicles on the Public Safety Building site could result in increased local traffic congestion, due to vehicles needing to be driven off-site to facilitate retrieval.

If the 42 lost spaces are not replaced either on-street or in an off-street public or private lot, displaced Police Department vehicles and employees would compete for existing on-street spaces, some of which may be residential permit spaces.

The following measure would be required to address this Alternative 2 impact:

> PSB Alternative 2 Mitigation Measure G-PSB-1: In addition to the measures outlined for the proposed project in Chapter 4, the following measures would be needed to address Alternative 2 impacts:
>
> - The City shall provide for temporary replacement of the 42 spaces lost to the Police and Fire Departments, either with additional on-street spaces plus off-street parking in public or private parking lots/garages, or entirely in off-street lots/garages.

Public Safety Building

Some of the lost spaces may be off-set by stacking vehicles on-site if a plan for vehicle retrieval which does not require excessive circulation on City streets is developed.

- The City shall investigate the efficacy of providing transit subsidies for Public Safety Building employees who currently drive. Those employees who shift their mode of travel from private autos to transit would then off-set lost parking spaces.

As with the proposed project, the net parking loss would remain a significant impact. (SU)

PSB Alternative 2 Impact G-PSB-2: The reduction in on-site parking with this alternative would result in minor changes to traffic patterns, with no significant change in service level results. (LTS)

The reduction in on-site parking would shift approximately 21 of the Police/Fire Department's 34 peak hour on-site trips to off-site locations. This represents a roughly 60 percent reduction in on-site trips, corresponding to the 60 percent reduction in on-site parking. The relocation of these trips would cause a small reduction in traffic volumes at intersections adjacent to the site, when compared to the proposed project, and negligible changes at intersections located further away from the project site. These changes would not affect intersection service levels.

PSB Alternative 2 Impact G-PSB-3: Employee walking trips will increase due to the reduction in on-site parking. This alternative would increase pedestrian traffic primarily on McKinley Avenue, Martin Luther King, Jr. Way, Addison Street and Center Street. (LTS)

Depending on the method by which the on-site parking loss of 42 spaces is mitigated, additional pedestrian trips could be added to McKinley Avenue and Addison Street (if angled parking is added as described above), or to Center Street, Addison Street and Martin Luther King, Jr. Way (if public garage space is reserved for use by the Police and Fire Departments). The latter parking solution would decrease the pedestrian impact on McKinley Street residents, and would take advantage of planned pedestrian improvements to Center Street and Addison Street. In either case, the increase in pedestrian trips would be relatively minor, estimated at 21 trips in the PM peak hour.

Mitigation Measure G-PSB-3 for the proposed project would be sufficient to address the potential pedestrian impacts of Alternative 2.

Public Safety Building

Impacts of this alternative in the following areas would be the same as those of the proposed project: public services and infrastructure; geology and seismicity; hazardous materials; air quality; and noise.

c. Reasons for Rejection. This alternative was initially rejected because the City believed that funding to demolish the Hall of Justice and Fire Administration Building would be available, freeing that land for parking. It may come to pass that such funding is not available after all. In that event, this alternative could be implemented.

3. Public Safety Building Alternative PSB-3. Seismic Upgrade and Renovation of the Hall of Justice and the Fire Administration Building (No Project Alternative).

a. Description. Under this alternative, the City would not build a new Public Safety Building, but would seismically upgrade and renovate the Hall of Justice and the Fire Administration Buildings, which then would continue to be used in their current functions.

Under this alternative, the following actions would occur:

- The Public Safety Building would not be built.
- The Hall of Justice and the Fire Administration Building would be seismically upgraded and renovated, and would continue to be used in their current functions.
- Other development on the block would remain unchanged from its current use and configuration.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. This alternative would be in general conformance with the plans and policies of the City as contained in the *Berkeley Master Plan* and the *Berkeley Downtown Plan*.

Retaining the current functions of the Hall of Justice and the Fire Administration Building functions would continue the present impacts that the neighborhoods west of McKinley Avenue now experience as a result of the proximity of these two uses.

Other land use impacts forecast to result from the construction and operation of the proposed Public Service Building would be eliminated under this alternative.

Public Safety Building

(2) Urban Design. By retaining the Hall of Justice and the Fire Admini-stration Buildings and not constructing a building at the northwest corner of the Civic Center, the potential for new adverse urban design impacts is reduced. However, as noted in Section 4C: *Historic Resources*, the Hall of Justice and the Fire Administration Building are neither architecturally distinguished nor of historic significance. In this way, this alternative would retain the existing buildings but forego the opportunity to provide a strong civic building at the important northwest corner of the Civic Center, one that strengthens the western edge of the Civic Center and that relates to and strengthens Old City Hall.

(3) Historic Resources. This alternative would retain the Hall of Justice and the Fire Administration Buildings. These structures are not historically significant structures, however. No other historic resources would be affected by this alternative.

(4) Public Services and Infrastructure. This alternative would require the same level of public services and infrastructure as the existing condition.

However, the continuing separation of the two functions (police and fire) in the case of a community-wide emergency would be an adverse effect of this alternative. However, without the proposed Public Safety Building, which is proposed to house a central, state-of-the-art emergency operations center, the City's response to emergencies would continue to be carried out at the City's back-up emergency operations center on Sixth Street. While the back-up emergency operations center would provide an adequate level of service for the City's needs, it would not provide the level of service that the emergency operations center proposed for the Public Safety Building would provide.

(5) Geology and Seismicity. Under this alternative, the Hall of Justice and the Fire Administration Buildings would be seismically strengthened. However, it is unlikely that these existing buildings could be cost-effectively renovated to the same "essential services standard" that the Public Safety Building will meet. In the event of a magnitude 7.0 or greater earthquake on the Hayward Fault, these renovated buildings would not necessarily remain fully functional. All other impacts of this alternative would be similar to those of the proposed project.

(6) Hazardous Materials. Hazardous materials impacts would be similar to those for the proposed project.

Public Safety Building

(7) Transportation, Circulation, and Parking. Three potential transportation-related impacts could result from the implementation of this alternative.

(a) Parking. The net loss of 44 parking spaces on the Public Safety Building site, currently available to City staff permit holders and the Police and Fire Departments, would not occur under this alternative; the spaces could be retained.

(b) Loss of Improvement in Access to Transit. The small improvement in proximity and access to transit of the proposed project would be foregone under this alternative.

(c) Pedestrian and Bicycle Trips. Pedestrian and bicycle trips, which would be shifted from McKinley Avenue to Addison Street and Martin Luther King Jr. Way under the proposed project, would remain on McKinley under this alternative.

(8) Air Quality. The magnitude of any long term air quality effects of this alternative would not be measurable. Construction period emissions including fugitive dust would shift within the Civic Center depending on the location of construction, but would not vary substantially on an areawide basis.

(9) Noise. The noise effects of this alternative would not vary substantially from either existing conditions or the proposed project. Construction period noise would vary on a site-specific basis, but not on an areawide basis.

c. Reasons for Rejection. This alternative would fundamentally fail to meet the objectives that the City has established for the Public Safety Building. It would not result in consolidation of the two departments and cannot accomplish the reuse of the existing buildings in a cost-effective manner.

4. Public Safety Building Alternative PSB-4. Construction of the Public Safety Building in its Current Proposed Location, but with Access Restricted to Martin Luther King Jr. Way.

a. Description. One characteristic of the proposed project that triggers environmental impacts on the surrounding neighborhood stems from vehicles using Addison Street to access the building and associated parking.

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Under this alternative, the City would construct the Public Safety Building at its current proposed location at the corner of Martin Luther King Jr. Way and Addison Street, but would restrict access to and from the site to Martin Luther King Jr. Way, opposite the western end of Center Street.

This alternative presupposes the replacement and demolition of the existing Alameda County Courthouse facility,[1] as the space the space presently occupied by the courthouse would be needed to provide vehicular access to the block from Martin Luther King Jr. Way. In addition, this alternative would include approximately 80 secured parking spaces in the area of the site that is west of the proposed Public Safety Building, relocation of the McKinley House off-site and demolition of the Fire Administration Building.

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. Under this alternative, impacts to the residential uses north of Addison Street resulting from public vehicles using Addison Street for access the Public Safety Building would be reduced. In addition, traffic resulting from the public's mistakenly using Addison Street seeking public parking for the building or looking for on-street parking while using the building, would be somewhat alleviated under this alternative. Without the need to provide access to the site from Addison Street and other neighborhood streets, the City could be provided with additional means of protecting the neighborhood. All other land use impacts would be similar to the proposed project.

(2) Urban Design. The current preferred project (Alternative 1) calls for a public plaza and clearly defined entranceway into the Public Safety Building at the location where a roadway would be required consistent with this alternative. The plaza and entranceway provide an important visual terminus to Center Street and act as a unifying feature for the public area in front of Old City Hall. When the existing Courthouse Building is demolished, this area will become a more unified open space, complementing Civic Center Park and creating a unified public open space area extending from Old City Hall to the Public Safety Building. A roadway through this area would visually and physically divide the Public Safety Building from Old City Hall and limit the benefits of a unified public civic center area; this would be inconsistent with the intent of the CCUDP. Such a roadway would be detrimental to the historic character of this civic area.

[1] The City has no authority or control over the County's decision to replace the courthouse facility or not, and does not have complete control over the demolition of the existing facility once the existing courthouse is replaced.

Public Safety Building

(3) Historic Resources. This alternative would result in the removal of the existing County Courthouse, the McKinley House and the Fire Administration Building, none of which are historically significant buildings. All other historic resource impacts under this alternative would be similar to those of the proposed project.

(4) Public Services and Infrastructure. As the levels of development and use under this alternative would be similar to the proposed project, impacts to public services and infrastructure would not vary greatly from those of the proposed project.

(5) Geology and Seismicity. The impacts related to geology and seismicity would be similar to those of the proposed project.

(6) Hazardous Materials. The impacts related to hazardous materials would be similar to those of the proposed project.

(7) Transportation, Circulation, and Parking. Two potential transportation-related impacts could result from the implementation of this alternative.

(a) McKinley Avenue Traffic. Vehicular traffic on McKinley Avenue from Police and Fire Department activities would decrease substantially under this alternative. However, some traffic could remain if McKinley Avenue were used to replace some of the lost on-site parking.

(b) Traffic on Martin Luther King Jr. Way. The addition of another driveway on Martin Luther King Jr. Way would slow traffic flow on that roadway. Unsafe conditions could result from the additional turning movements onto the busy street, especially at the driveway's location opposite Center Street, given its proximity to Addison Street.

(8) Air Quality. The long-term air quality effects of this alternative would not vary substantially from either existing conditions or the proposed plan.

(9) Noise. The noise effects of this alternative would not vary substantially from either existing conditions or the proposed plan.

c. Reasons for Rejection. Incorporation of a roadway from Martin Luther King Jr. Way into the site would physically divide the Public Safety Building from Old City Hall and limit the benefits of a unified public civic center area.

This outcome would be inconsistent with the goals of the *Civic Center Urban Design Plan.*

5. Public Safety Building Alternative PSB-5. Accommodation of the Functions of the Proposed Public Safety Building in a New Civic Center Building.

a. Description. One characteristic of the proposed project that leads to potential environmental impacts is the proximity of public uses to the adjacent residential neighborhood. Under this alternative, the City would demolish the Martin Luther King Jr. Civic Center Building, and replace it with a larger building that would accommodate the planned functions of the proposed Public Safety Building. A separate Public Safety Building would not be constructed. The Hall of Justice and the Fire Administration Building would be vacated, setting the stage for their eventual demolition, but other land uses and activities on the Old City Hall block would remain unchanged from their current condition.

This alternative represents a subset of the actions envisioned under Civic Center Alternative CC-3 (described and evaluated above).

b. Environmental Issues.

(1) Land Use and Consistency with Public Policy. As long as the various design and development intensity concerns outlined above in the discussion of the Civic Center Alternative CC-3 can be successfully addressed, this alternative would be in general conformance with the plans and policies of the City, as contained in the *Berkeley Master Plan* and the *Downtown Plan.*

Any land use impacts related to the construction and operation of the Public Safety Building near the existing residential neighborhood would be eliminated under this alternative.

Consolidation of the Hall of Justice and the Fire Administration Building functions into the new Civic Center Building also would lessen the present impacts that the neighborhoods west of McKinley Avenue experience as a result of the proximity of these two buildings, if this consolidation is coupled with the removal of these two buildings.

Replacement of the Martin Luther King Jr. Civic Center Building with a new Civic Center Building housing all City functions including the police and fire operation now proposed for the Public Safety Building would retain the strong civic functions of the Civic Center by focusing them in one location. This

Public Safety Building

arrangement also holds the potential to allow the civic functions of Martin Luther King Jr. Park to be strengthened as part of the construction of the new building.

(2) Urban Design. To a greater extent than would be the case for land use issues, the conformance of this alternative with the *Berkeley Master Plan* and the *Berkeley Downtown Plan* in urban design terms will revolve around the design and development intensity concerns noted in Alternative CC-3.

As with the Alternative PSB-3, this alternative would not result in the construction of a building at the northwest corner of the Civic Center, so it would not adversely affect urban design in that location. However, some potential benefits of the proposed Public Safety Building project could be lost under this alternative. One example is the loss of opportunity to strengthen the western edge of the Civic Center in a way that relates to and strengthens Old City Hall.

The development of a new Civic Center Building to replace the Martin Luther King Jr. Civic Center Building, if coupled with the renovation of Martin Luther King Jr. Park, has the potential to strengthen the urban design qualities of the Civic Center.

(3) Historic Resources. Demolition of the Martin Luther King Jr. Civic Center would result in the loss of this City Landmark. Its loss could be somewhat mitigated, however, through sensitive design of the new Civic Center Building and the sensitive restoration of the park. All other impacts would be similar to those of the proposed project.

(4) Public Services and Infrastructure. As the levels of development and use under this alternative would be the same as for the proposed project, impacts to public services and infrastructure would be identical to those of the proposed project. It is possible that some site-specific infrastructure and utility impacts could result from the expansion of activities at the Civic Center Building site, but these design issues would not be expected to pose insurmountable roadblocks to its accomplishment.

(5) Geology and Seismicity. Under this alternative, the seismically unsafe Civic Center Building would be replaced with a building that meets current standards for earthquake safety, and the seismically unsafe Hall of Justice and Fire Administration Buildings would be vacated. However, accomplishing such a seismic safety standard for the entire Civic Center

Public Safety Building

Building would be very expensive and unnecessary for the remainder of the building. All other impacts would be similar to those of the proposed project.

(6) Hazardous Materials. The impacts related to hazardous materials would be similar to those of the proposed project.

(7) Transportation, Circulation, and Parking. Four potential transportation-related impacts could result from the implementation of this alternative.

(a) Parking. The net loss of 44 parking spaces on the Public Safety Building site, currently available to City staff permit holders and the Police and Fire Departments, would not occur under this alternative; the spaces could be retained.

(b) Concentration of Pedestrian Trips. This alternative would concentrate pedestrian trips—both those of employees and visitors to the Police and Fire Departments—at the heart of the Civic Center, closer to public parking garages and away from residential areas.

(c) McKinley Avenue Traffic. Vehicular traffic on McKinley Avenue from Police and Fire Department activities would be reduced under this alternative.

(d) Milvia Street Traffic. Police and Fire Department vehicular traffic would be focused closer to the heart of the Civic Center under this alternative. While this concentration would have some beneficial consequences (proximity to downtown parking garages and removal of trips from the neighborhoods) it would produce increased congestion at busy intersections, along a bike route and in an area of heavy pedestrian activity.

(8) Air Quality. The magnitude of any long term air quality effects of this alternative would not be measurable. Construction period emissions including fugitive dust would shift from the McKinley Avenue/Martin Luther King Jr. Way area to the Civic Center Building block, but would not vary substantially on an areawide basis.

(9) Noise. The noise effects of this alternative would not be substantially different from either existing conditions or the proposed project. Construction period noise would shift from the McKinley Avenue/Martin Luther King Jr. Way area to the Civic Center Building block, but would not vary substantially on an areawide basis.

c. Reasons for Rejection. This alternative has been rejected for basically the same reasons as Civic Center Alternative CC-3 (p. 228).

C. Other Alternatives Considered in the Planning Process

Substantial public input has been provided throughout the initial stages and refinement of both the *Civic Center Urban Design Plan* and plans for the proposed Public Safety Building. Public meetings and workshops were held in 1995 to solicit community input on the *Civic Center Urban Design Plan*. The design competition for the Public Safety Building which included public review and comment was held in early 1996. A Citywide scoping meeting was held on May 9, 1996 to allow public comment on the scope of this environmental analysis. The Citywide scoping meeting has been supplemented by follow-up meetings with neighborhood residents to discuss traffic issues and possible mitigation strategies.

The alternatives selected and analyzed above reflect the public's review and comments to date. However, a number of other ideas were suggested that were not carried forward as formal alternatives. These include the following:

- Relocating Civic Center functions, including the proposed Public Safety Building, to the Berkeley Marina. Generally, the public did not support this alternative, and the City determined that a Public Safety Building outside the Civic Center would not provide the level of service needed for such a facility.
- Different configurations for the Public Safety Building on the Old City Hall block. As an example, one different configuration included building the proposed Public Safety Building further west on the block, fronting directly onto McKinley Avenue. Generally, residents of the adjacent neighborhood opposed such a configuration, and City staff determined that potential impacts would be greater than for a building on the proposed site.
- Maintaining Restricted Residential (R-2) District standards on the block. While there was some support for this concept, City staff determined that holding the development of the Public Safety Building to these standards would produce a building configuration that would be unacceptable in terms of its functionality and potential land use impacts. Such a layout would produce a building with a floorplate and configuration that would greatly hamper its intended function.

D. Environmentally Superior Alternatives

1. Civic Center Urban Design Plan

Civic Center Urban Design Plan

When comparing the proposed *Civic Center Urban Design Plan* and the alternatives presented in this chapter, it is not feasible at this time to determine which alternative is definitively environmentally superior. Alternative CC-3 would direct development away from existing residential neighborhoods, thereby reducing certain types of impacts related to traffic and parking. However, the preferred alternative (Alternative 1) proposes mitigations to address many of those impacts, and it is difficult to determine what new impacts would be created from Alternative CC-3 absent considerable refinement of the alternative in terms of the location and size of proposed buildings. One of the questions that comes up in the analysis of Alternative CC-3 is whether this alternative could be developed as proposed in a sensitive manner (with such a concentration of space and activities on one site). Alternative CC-3 also may not be feasible from a financial or logistical standpoint. For this alternatives anlaysis, it is assumed that such a program would be possible. Additionally, it should also be noted that the differences between the environmental impacts of the *Civic Center Urban Design Plan* and the conceptual alternative would not be substantial.

Civic Center Urban Design Plan

If this alternative could be feasibly developed, it would eliminate impacts resulting from the construction and operation of the Public Safety Building near the existing residential neighborhood. Additionally, replacement of the Martin Luther King Jr. Civic Center building with a new Civic Center Building housing all City functions, including the police and fire operation now proposed for the Public Safety Building, would retain these civic functions in the Civic Center. If the development program needed to house all of these activities in one building could be accommodated on the site, then implementation of this alternative also has the potential to strengthen the civic functions of the Martin Luther King Jr. Park through its renovation and redesign.

However, it is likely that this alternative is not feasible. As described under Alternative CC-3 and Alternative PSB-5, it would be very expensive and difficult to meet the operational requirements of the Public Safety Building when combined with other Civic Center functions. These include the objective of meeting very high seismic standards, and the security requirements of the building. Moreover, meeting the Public Safety Building parking and access requirements would require substantial and very expensive modifications to Civic Center Park and the loss of an Historic Landmark building. finally, circulation impacts of combining many functions in a single

Civic Center Urban Design Plan

location could lead to a separate set of significant adverse environmental effects which have not been evaluated in this EIR. Providing parking under the Civic Center Park would draw vehicle trips into the Civic Center, causing greater traffic congestion than in the proposed plan. Such congestion could offset the positive effects of pedestrian enhancements and improvements that are underway or proposed.

Impacts to public services and utilities, and hazardous materials would be the same as the proposed *Civic Center Urban Design Plan*, and impacts to historic resources are assumed to be mitigable. Additionally, this alternative would result in the demolishing of the existing seismically unsafe Martin Luther King Jr. Civic Center Building, which would be a positive effect from a safety standpoint.

Public Safety Building

2. Public Safety Building Project

Similar to the *Civic Center Urban Design Plan*, when comparing the proposed Public Safety Building Project and the alternatives presented in this chapter, it is not feasible at this time to determine the environmentally superior alternative.

Public Safety Building Alternative PSB-3 would eliminate certain types of impacts resulting from the construction and operation of the Public Safety Building near the existing residential neighborhood and has the potential to strengthen the civic functions of the Martin Luther King Jr. Park area. However, the proposed project and preferred alternative would be subject to mitigations that would greatly reduce those potential impacts.

Additionally, because the functions of the Public Safety Building would be included in a single building on the existing City Administration building site, the parking spaces that would be lost if the proposed Public Safety Building were built, could remain. An adverse effect is that the additional parking provided by this alternative could generate more traffic and congestion in the Civic Center area.

As with the *Civic Center Urban Design Plan*, it should be noted that it is difficult to draw conclusions about the conformance of conceptual alternatives with environmental criteria and urban design and land use ideals, and the differences in the impacts of the Public Safety Building alternatives vary across environmental topics and would be very small.

Chapter 6
CEQA REQUIRED ASSESSMENT CONCLUSIONS

■ ■ ■

As required by the California Environmental Quality Act (CEQA), this chapter provides an overview of the impacts of the proposed plan and project based on the technical topics analyzed. Chapter 4, *Setting, Impacts, and Mitigation Measures*, assesses the effects the proposed project on the environment and suggests measures to minimize those effects. A summary table describing the impacts and mitigation measures is provided in Chapter 2. The topics covered in this chapter include effects found not to be significant; growth-inducing impacts; short-term uses versus long-term productivity; unavoidable significant environmental impacts; significant irreversible changes; and cumulative impacts.

A. Effects Found Not to be Significant

The City of Berkeley circulated a Notice of Preparation (NOP), which contained a checklist that further identified the types of impacts that might result from the *Civic Center Urban Design Plan* and the Public Safety Building project. The City of Berkeley also conducted a public scoping session for the proposed program and project on May 9, 1996. Attendance at the scoping session included approximately 20 residents, business owners, and City staff members. Where appropriate, the issues and concerns raised during the scoping session have been addressed in this EIR, as well.

Through these efforts the following topics were found to not be significant and have not been further evaluated in this EIR.

1. Cultural Resources

Neither the *Civic Center Urban Design Plan* or the Public Safety Building will cause an impact on archaeological, paleontological, or ethnic or sacred uses in the area. No significant impacts on these resources are expected. Historical resources are addressed in this EIR in Chapter 4C. State law requires that, in the event that site preparation or grading activities on specific development sites uncover prehistoric or historic archaeological resources, work shall be

discontinued and a qualified archaeologist engaged to determine the significance of the suspected materials.

2. Vegetation and Wildlife

Development in the Civic Center planning area will not result in impacts on endangered or locally designated species or habitats of these species. The Civic Center area is urbanized and does not provide habitat for endangered or threatened species. The area is also not within a wetland habitat or wildlife migration route.

3. Population and Housing

The program and project will not create an impact by exceeding population projections or by inducing population growth because the project consists of public buildings which are needed for the existing population. There is no housing proposed in the Civic Center planning area. The proposed *Civic Center Urban Design Plan* may result in specific projects that displace existing housing, however this potential impact will be addressed when actual removal of this housing is proposed.

4. Energy and Mineral Resources

Neither the *Civic Center Urban Design Plan* nor the Public Safety Building will result in significant impacts on energy and mineral resources. The Civic Center is an urbanized area with available transit, nearby housing and readily available facilities for electricity and gas. The Public Safety Building is being designed and constructed under current energy conservation codes and requirements of the City of Berkeley, which are more stringent than State requirements or those standards and techniques in place when the existing facilities were designed and constructed. For this reason, new buildings should use less energy than existing buildings and no significant impacts are anticipated.

B. Growth-Inducing Impacts

As required be CEQA, this section summarizes the project's growth-inducing impacts on the surrounding community. According to CEQA, a project is typically considered to be growth-inducing if it in any way fosters economic or population growth. Growth inducement is theoretically limited to the extent of growth or development that the project itself makes reasonable foreseeable. Projects likely to have significant growth-inducing impacts include extensions

or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or undeveloped.

Because neither the plan nor the project will not make any growth or development reasonably foreseeable which would not otherwise be anticipated, neither would not generate any substantial growth-inducing effects.

C. Short-Term Use vs. Long-Term Productivity

According to CEQA Guidelines, an EIR must include an assessment of the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity. This assessment describes the cumulative and long-term effects of the proposed project which would adversely affect the state of the environment.

Project implementation would generate some short-term effects in environmental topical areas considered in Chapter 4. However, if recommended mitigation measures are appropriately implemented, these potential impacts can be reduced to acceptable levels. Additionally, the implementation of the project would result in the long-term development of the downtown area as a center for civic activity, and positive economic and cultural productivity for the area. This is a positive long-term effect that is anticipated by the project.

D. Unavoidable Significant Environmental Impacts

Unavoidable significant environmental impacts are those significant impacts that cannot be mitigated to a less than significant level.

Development envisioned by the *Civic Center Urban Design Plan* would result in the demolition of the Framat Lodge, a City Landmark. Because the City cannot ensure that recommended mitigation measures are implemented by the County, this impact must be considered unavoidable.

As described in Chapter 4G: *Transportation, Circulation, and Parking,* the Public Safety Building would result in significant and unavoidable impacts to parking. Construction of the Public Safety Building is expected to cause a net loss of 61 parking spaces, of which 52 are currently used by the Police and Fire Departments for employee parking and vehicle storage. The remaining

nine are used by City staff permit holders, official City vehicle storage, and reserved County Court judges. Though mitigation is proposed in this EIR, this impact would remain significant since replacement of all 61 parking spaces is not anticipated.

Additionally, as described in Chapter 4I: *Noise,* noise generated during the demolition and construction of the Public Safety Building would result in daytime noise levels that would be considered significant. This impact is also considered unavoidable.

E. Significant Irreversible Changes

CEQA requires that EIRs assess whether the project will result in significant irreversible changes to the physical environment. The CEQA Guidelines describe three distinct categories of significant irreversible changes that should be considered, as further detailed below.

1. Changes in Land Use which Commit Future Generations

The proposed program and project would commit future generations to changes in development in the Civic Center planning area. However, because the planning area is currently fully urbanized, these minor changes in development do not result in major changes in the type of land use, or the depletion of an open space or natural resource.

2. Irreversible Damage from Environmental Accidents

No significant environmental damage, such as the accidental spill or explosion of a hazardous material, is anticipated with implementation of the proposed program or project since the use of unusual hazardous materials are not proposed.

3. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes issues related to increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. The proposed program and project will require electric and gas service. However, it is anticipated that these additional services should fall within the capabilities of the existing utilities, and no major upgrades would be required as a result of the program and project. Additionally, the property is not agricultural land and there is no access to a mining reserve.

F. Cumulative Impacts

All impact assessments in this EIR take into consideration the cumulative impacts of the proposed program and project, as discussed below:

- *Land Use and Public Policy*. Land use changes proposed by the project are site specific and are not anticipated to have any adverse cumulative effect. These changes are consistent with the civic nature of the planning area, and with the City's ordinances and planning documents. City and regional policies anticipate development of the Civic Center, and no significant cumulative effects are anticipated with such development.
- *Urban Design*. A generally beneficial change in the character of the Civic Center would occur if all the improvements and guidelines proposed by the plan and project are implemented. Any adverse cumulative effects of this change would be mitigated with the implementation of the measures outlined in this EIR. Additionally, it is generally anticipated that the guidance provided by the *Civic Center Urban Design Plan* would allow possible cohesive development of the planning area. No significant cumulative urban design impacts are anticipated.
- *Historic Resources*. Historic resource loss could be cumulatively impacted by the demolition of landmark or significant structures. If many of these buildings throughout the City of Berkeley were demolished, cumulative loss of historic resources would result, creating a permanent change in the City's character and culture. However, the potential impact of losing historic or significant structures in the Civic Center planning area would be mitigated with the implementation of the measures outlined in this EIR, therefore no significant cumulative impacts are anticipated.
- *Public Services and Infrastructure*. The demands for public services and facilities consider the implications of Citywide and regional demands. Generally, public agencies providing such services anticipate growth consistent with City polices.
- *Geology and Hydrology*. No cumulative impacts to geology are anticipated since these impacts are site specific, and should be appropriately mitigated through measures outlined in this EIR. Because the planning area currently urban, and no increase in the frequency, duration, or volume and rate of stormwater runoff are anticipated, no cumulative hydrology impacts are expected.

- *Hazardous Materials*. Hazardous materials impacts of the proposed project are site specific. No cumulative impacts are anticipated if the measures outlined in this EIR are implemented.
- *Transportation and Circulation*. Traffic projections for the project take cumulative impacts into consideration. Developments which are approved or planned in the City of Berkeley were assumed to be built in this environmental analysis, consistent with the City policies.
- *Air Quality*. Cumulative air quality impacts are directly related to cumulative traffic impacts in the project area. The analysis of air quality impacts is based upon the traffic analysis which considers cumulative development. Therefore, no cumulative air quality impacts are anticipated with implementation of the proposed project.
- *Noise*. The analysis of noise impacts in this EIR is based in part upon the traffic analysis, which considers cumulative development. No cumulative noise impacts are anticipated with implementation of the proposed project beyond those identified and appropriately mitigated for in this EIR.

Chapter 7
REPORT PREPARATION

■ ■ ■

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B. List of Contacts

Alschuler, Karen; Simon Martin-Vegue Winkelstein Moris

Assefa, Sam; Simon Martin-Vegue Winkelstein Moris

Bard, Gary; Deputy Fire Chief; Fire and Emergency Services Department; City of Berkeley

Barton, Steve; Senior Planner; City Planning Department; City of Berkeley

Buckley, Steve; Planning Division; Alameda County

Chatterjee, Apurba; Engineering Division; Department of Public Works; City of Berkeley

Drullis, Charles; Ross Drullis Architects

Elmer, Vickie; Department of Public Works; City of Berkeley.

Gara, Suzanne; California State Office of Historic Preservation

Grimes, Ruth; Senior Planner; Fire Department; City of Berkeley

Haney-Owens, Karen; Senior Planner; City Planning Department; City of Berkeley

Hooper, Elizabeth; Ross Drullis Architects

Jones, Lois; Senior Planner (Retired); Current Planning Division; City Planning Department; City of Berkeley

Kelly, Gil; Planning Director; City Planning Department; City of Berkeley

Landau, Nathan; Senior Management Analyst; City Planning Department; City of Berkeley

Leach, Howard; Leach Mounce Architects

Ledbetter, John; Associate Planner; City Planning Department; City of Berkeley

Marks, Dan; Current Planning Division; City Planning Department; City of Berkeley

McGowan, Pat; Design Review Planner; City Planning Department; City of Berkeley

Proctor, Diana; Office of the City Manager; City of Berkeley

Ripley, Cynthia; Bull Stockwell Allen & Ripley

Ross, Michael; Ross Drullis Architects

Sanderson, Susie; Transportation Planner; Advance Planning Division; City Planning Department; City of Berkeley

Sergent, Danielle; Bull Stockwell Allen & Ripley

Sorensen, Giselle; Current Planning Division; City Planning Department; City of Berkeley

Thomas, Andrew; City Planning Department; City of Berkeley

C. Report Preparation

Brady and Associates, Prime Consultant: *Project Management and Report Production, Land Use, Public Policy, Urban Design, Public Services and Infrastructure, and CEQA Assessment and Conclusions.*

2215 Fifth Street
Berkeley, CA 94710

David Clore, AICP, Principal-in-Charge
Amy Skewes-Cox, Senior Associate
Bobbette Biddulph, Associate Planner
David Alumbaugh, Contract Planner
Greg Sarjeant, Graphics
Greg Desmond, Graphics
Susan Smith, Word Processing

Donald Ballanti, Certified Consulting Metorologist: *Air Quality*
1424 Scott Street
El Cerrito, CA 94530

Earth Tech: *Hazardous Materials*
2030 Addison Street, Suite 500
Berkeley, CA 94704

Fehr & Peers Associates, Inc.: *Transportation, Circulation, and Parking*
3685 Mt. Diablo Boulevard, Suite 301
Lafayette, CA 94549

Illingworth & Rodkin: *Noise*
85 Bolinas Road, Suite 11
Fairfax, CA 94930

Alan Kropp & Associates, Inc.: *Geology and Soils*
2140 Shattuck Avenue
Berkeley, CA 94704

Sally Woodbridge: *Historic Resources*
2273 Vine Street
Berkeley, CA 94709

Appendix A
NOTICE OF PREPARATION

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Appendix B
BERKELEY DOWNTOWN PLAN POLICY FRAMEWORK

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DOWNTOWN PLAN GOALS:

Goal 1: Express and enhance Berkeley's unique social and cultural character in the Downtown.

Goal 2: Create an appealing and safe Downtown Environment, with a comfortable pedestrian orientation.

Goal 3: Diversify, revitalize, and promote the Downtown economy.

1. HISTORIC PRESERVATION AND URBAN DESIGN

Objective 1

Provide continuity between the old and the new in the built environment. Retain the scale and the unique character of the Downtown.

Policies:

1.1 Retain the older historically valuable buildings in and around the Downtown. Encourage adaptive reuse of older buildings by promoting rehabilitation and reuse of existing structures that contribute to the overall design character of Downtown.

1.2 Maintain the existing scale of Downtown. New construction should fit into the context of the existing built environment and complement Downtown's historic character. Encourage infill development that is compatible with existing uses and improves the pedestrian environment and the streetscape. Permit taller buildings only if they are in scale with other structures in the area.

1.3 Increase citizen awareness of the architectural heritage of Downtown.

1.4 Promote earthquake reinforcing of older and historic buildings.

1.5 Establish specific design review criteria and regulations that express the need for projects to respect and preserve the historic nature of the Downtown.

Objective 2

Strengthen the Downtown's identity, image and sense of place.

Policies:

2.1 Encourage cooperation between the business community and the City in the establishment of an attractive and successful Downtown. Encourage individuals (merchants, owners and business people) to contribute and maintain landscaping throughout Downtown on their own property and in the public domain.

2.2 Recognize that different parts of the Downtown have special character, and develop programs to strengthen and reinforce it. Develop land use, density, special design features, and building guidelines.

2.3 Encourage a compact Downtown to conserve open space and the natural environment in other parts of the City.

2.4 Create a visually cohesive district which retains its early 20th century characteristics.

Objective 3

Improve the visual and environmental quality of the Downtown, with an emphasis on the pedestrian environment.

Policies:

3.1 Test proposed new developments as to their potential impact on views and solar access to and from important public places.

3.2 Develop a detailed streetscape Plan. Create plazas and other urban spaces as identified in that Plan, to enhance the pedestrian environment and increase the number of people who will use Downtown. Enhance sidewalks and streetscapes to reflect the scale and early 20th Century historic quality of Downtown architecture.

3.3 As part of private and public development and renovation projects, attempt to maximize green spaces, natural surfaces, plants and streetscaping in the development plans.

3.4 Support entrance and facade remodeling on Downtown buildings that will contribute to the pedestrian environment and the historic character of Downtown.

3.5 Develop City programs to improve the pedestrian and aesthetic nature of the Downtown environment. Encourage cooperation between the business community and the City in the establishment of an attractive, functional, meaningful and successful Downtown.

Objective 4

Enhance and improve the physical connection between Downtown and the surrounding neighborhoods and institutions, such as the University of California.

Policies:

4.1 Adopt development guidelines that promote linkages and better connections between the Downtown and the University; and between the Downtown and the neighborhood shopping districts.

4.2 Protect adjacent residential neighborhoods with guidelines that scale down development at the periphery of Downtown (i.e., a transitional zone).

4.3 Development along the Oxford edge should incorporate open spaces to provide a transition between the Oxford edge and the more dense areas of the Downtown. Maintain visual openness along Oxford Street.

4.4 Activity and new development in the Civic Center should be oriented toward the Civic Center park and away from the residential neighborhood. Expansions or additions to buildings should keep within the character of the Civic Center and maintain the existing setback of Old City Hall. The height should not exceed the Old City Hall roofline.

4.5 Use common elements, such as street trees, paving material and Strawberry Creek, to connect the University and the Downtown.

***Specific Criteria for Downtown Design Review*:**

a. Require new uses and storefront remodels to provide a visual connection between public and private space through the design of entrances and use of windows at the ground floor.

b. Require new construction along entry corridors within the Downtown Study Area (Shattuck and University) to provide special signage or landscaping and streetscaping in accordance with the character of the specific location. Encourage new construction and renovations to enhance the entry characteristics of new sites through the use of architectural design elements. Large, single tenant projects on these corridors will be required to continue the visual appearance of smaller, individual storefronts through the use of appropriate design techniques.

c. In order to maintain Downtown's small scale and diversity, buildings should be stepped back after two or three stories to respect the existing streetwall.

d. Require that new development maintain the continuity of the existing with appropriate window patterns, entrances, paving and zero streetscape, lot line development.

e. Require new development projects to include street trees along the property frontage as specified by the Open Space/Streetscape Plan, to be developed as part of the Implementation of this Plan, and to include other streetscape elements as recommended by that Plan.

f. Require new construction to incorporate public open spaces where feasible and where they would be functional and not detract from the streetscape continuity.

g. Prohibit additional curb cuts or driveways within the core area. Permit existing driveways to be relocated or replaced, but encourage parking for core area projects to be provided in the buffer areas in order to improve the core area pedestrian environment.

h. Require applicants for new construction to submit a sun/shade diagram showing the impact of the construction on open spaces and sidewalks.

i. Restrict the subdivision of large, commercial street level spaces into small spaces if the facade would be significantly altered in a negative manner.

j. New construction should include architectural features such as awnings, canopies and recessed entries that can protect pedestrians from increment weather. Features should be designed as a part of the building, rather than as additions placed on the exterior of the structure.

k. Buildings should be faced with natural brick, pressed brick, concrete, or stucco, stone (marble, granite) tile, or terra cotta. Tile should be encouraged as a footing to shop front windows.

l. Require that a portion of the facade at the street level be constructed of a transparent building material, to maximize interest for pedestrians and encourage retail uses at the street level.

m. Historic Building Code - Utilize the State Historic Building Code, which exempts designated historic buildings from the more stringent regulations of the City's building code, for landmark buildings in the Downtown district.

n. Demolitions - Prohibit demolition of any historic structure documented in the Berkeley Architectural Heritage Association Historic Survey of Downtown, and require LEC review of demolitions of buildings greater than 40 years old, as specified in the Landmarks Preservation Ordinance.

o. Applicants and Staff should answer the following questions about design review applications in Downtown as a part of any application for a permit:

- Does the project help to create a unique and successful Downtown shopping environment?
- Does the project fit within the established guidelines for building heights, setbacks and bulk as reflected in the Downtown Plan and zoning?
- Will the proposal provide continuity between the old and the new in the built environment?
- Does the project promote rehabilitation and reuse of a building in a way that contributes to the overall character of Downtown?
- Will the project help to create an attractive physical environment?
- Will the proposal help to enhance local resident's civic pride and understanding of Berkeley's unique character?
- Are the materials, color, scale, entrances, fenestrations, roof shape, decorative elements, paving of the project compatible with the historic streetscape or the streetscape plans proposed by the Downtown Plan?

Special Guidelines for Subareas:

Shattuck Avenue Design Guidelines

Within the Downtown design regulations, develop specific guidelInes to apply to new construction, demolitions and facade changes for properties fronting onto Shattuck Avenue from Dwight to Hearst.

Designate Shattuck Avenue from Hearst to Dwight Way as a Special Historic Retail District, with special requirements for design review and historic restoration. These standards are intended to preserve and encourage the restoration of historic recessed entrances, special paving and ornate display windows, and to improve existing storefronts along Shattuck Avenue as part of restoring Downtown's historic qualities.

In addition to the overall Downtown guidelines, apply the following requirements to the part of properties that front along the Shattuck Avenue District:

- New construction must maintain the historic three- to five-story streetwall along Shattuck Avenue.
- New construction or remodeling must maintain the pattern of 15-30 foot shop/office frontages along Shattuck Avenue that gives the street a sense of scale and detail, and helps to generate a high level of pedestrian activity and interest.
- Work with owners of existing storefronts along Shattuck Avenue where necessary in a program of facade restoration as part of emphasizing downtown's historic qualities.

Oxford Edge

Encourage new development at the Oxford Street intersections to provide setbacks in order to improve the physical link between the University campus and the Downtown, and to provide public open space. New development along the Oxford Street frontage should respect the street alignment. Require new construction along Oxford Street to maintain visual access to the hills. Sun/shade diagrams will be important in guiding the form of development, and building setbacks will be required above the second and third story to help preserve existing views, relate to the existing scale, and to preserve sunlight to sidewalks and open space.

Civic Center/West Buffer

Require careful massing of buildings greater than two stories. Landscaping will be required for projects around the Civic Center Park, in accordance with the Streetscape Plan to be developed. Sun/shade diagrams will be required to insure that sunlight to sidewalks and open space is protected. New construction in the Civic Center area must maintain the cultural/civic character of the area.

Addison Street and Center Streets

Sun/shade diagrams will be required for all new construction. Building setbacks may be required above the second and third story to help preserve existing views, relate to the existing scale, and to preserve sunlight to sidewalks and open space. Additional requirements may be developed for these streets, based upon the analysis contained in the Open Space and Streetscape Plan.

2. SOCIAL/CULTURAL

Objective 1

Insure that Downtown enhances Berkeley's unique social and cultural character by making Downtown a center with both daytime and nighttime activities

Policies:

1.1 Encourage increased use of the Downtown for cultural events by providing additional cultural and public facilities and by refurbishing existing facilities.

1.2 Provide opportunities for the many craftspeople, artists and performing artists in Berkeley to display and perform their work

1.3 Provide cultural activities and opportunities for diverse ethnic, age and social groups in the Downtown.

1.5 Increase the opportunities available for evening activities in the Downtown, a building upon the activity generated by the theaters.

Objective 2

Create a sense of community by locating housing for all income types in and near the Downtown, near transit, employment, retail and cultural opportunities.

Policies:

2.1 Residents of Downtown housing should be of a wide variety of social and income groups.

3. ENVIRONMENTAL QUALITY, OPEN SPACE AND RECREATION

Objective 1

Enhance the air and water quality in the Downtown.

Policies:

1.1 Maximize the air and water quality in the Downtown.

1.2 Uncover Strawberry Creek where feasible to develop a water feature in the Downtown.

Objective 2

Encourage the Development and use of renewable resources and reduce the reliance on non-renewable resources in the Downtown.

Policies:

2.1 Develop building design guidelines that will maximize solar gain, active and passive, and protect solar access.

2.2 Develop energy efficiency standards for new and existing buildings.

2.3 Encourage recycling of waste materials.

Objective 3

Protect Downtown buildings and their occupants from fire hazards.

3.1 Insure that the vitality and development in the Downtown does not lead to additional dangers from fire and the spread of fire from one building to another.

3.2 Insure that new projects and renovation projects in the Downtown do not jeopardize the safety of the occupants in the event of a fire.

Objective 4

Insure that the Downtown environment is free of toxics and hazardous waste.

4.1 Provide information about the risks from hazardous waste, toxic materials and other hazards, and minimize these risks where possible.

Objective 5

Develop the Downtown as a pleasant place for pedestrians.

Policies:

5.1 Provide cultural and recreational activities for a wide range of people.

5.2 Provide a variety of outdoor spaces for pedestrians, particularly gathering spaces. Insure that these outdoor spaces are comfortable by emphasizing sunlight access, views, and sun and/or wind protection where appropriate.

5.3 Enhance the existing open space in the Downtown, including the Civic Center Park area and the BART Plaza.

5.4 Provide pedestrian amenities.

Objective 6

Reduce the risk of earthquake damage to people and property

Policies:

6.1 Insure that existing, hazardous buildings in the Downtown are strengthened to resist seismic forces, or mitigated in other ways, including by demolition.

6.2 Insure that historic buildings are strengthened to resist seismic forces, while still retaining their historic value and character.

4. ECONOMIC

Objective 1

Enhance the economic vitality of the Downtown with a mix of businesses to serve a wide variety of people.

Policies:

1.1 Insure that the mix of uses in the Downtown is appropriate to the Downtown's location both as a part of Berkeley and the larger region.

1.2 Provide opportunities for small, non-franchised businesses.

1.3 Improve the opportunity for nighttime and weekend activities in the Downtown to provide for a longer period of activity in the area.

Objective 2

Strive for a socially diverse, economically thriving Downtown, including a strong retail sector.

2.1 Draw a wide variety of Berkeley residents to Downtown.

2.2 Enhance the shopping activity in the Downtown so that it serves local residents,employees and regional residents.

1.3 Enhance the safety and security of people Downtown.

Objective 3

Provide employment opportunities for Berkeley residents.

Policies:

3.1 Attract businesses that have employment needs that match the employment needs of Berkeley residents.

3.2 Attract businesses that provide entry level employment opportunities and that hire youth.

Objective 4

Insure that there is a balance between revenues and expenditures.

4.1 Determine the fiscal impacts of development Downtown.

4.2 Insure that all public and private development Downtown contributes positively to the Downtown and pays its share of development costs and impacts associated with housing, traffic, transit, parking, infrastructure and other impacts as may be identified.

4.3 Investigate development incentives (tax benefits, density bonuses, etc.) to encourage appropriate Downtown development.

5. TRANSPORTATION AND CIRCULATION

Objective 1

Encourage the use of transit as the primary mode of travel.

Policies:

1.1 Increase transit access to and from the Downtown in response to commute patterns.

1.2 Develop shuttle transit service to supplement AC service to the Downtown from residential neighborhoods and satellite and peripheral parking facilities.

1.3 Minimize the conflict between transit vehicles and other vehicles requiring use of Downtown streets for both safety and improvement of bus operating speeds.

1.4 Provide safe, conveniently spaced and weather protected bus stops near major public and private facilities which attract potential transit riders.

Objective 2

Insure adequate vehicular access to, from and within the Downtown.

Policies:

2.1 Minimize conflicts among auto, transit, bicycle and pedestrian uses for a safe circulation system in the Downtown.

2.2 Channel vehicular traffic onto primary auto oriented streets.

2.3 In the Downtown core minimize conflict between autos entering and exiting onto the street network.

Objective 3

Create adequate parking facilities to support land use policies for the Downtown.

Policies:

3.1 Increase the availability of short term parking spaces on the periphery of the core Downtown area.

3.2 Discourage the use of existing public and private parking facilities for long term parkers in the high demand area of the Downtown core.

3.3 Provide new long term parking facilities at remote locations adjacent to transit lines or shuttle service.

Objective 4

Decrease single occupant vehicle trips to and from the Downtown to create a viable and livable environment.

Policies:

4.1 Actively promote the use of alternative means of transportation to the single occupant vehicle.

4.2 Establish a Transportation System Management Plan for the Downtown which requires participation by both existing and new developments.

Objective 5

Create safe and convenient pedestrian access to, from and within the Downtown.

Policies:

5.1 Minimize the conflict between pedestrian and vehicular traffic at intersections as well as midblock.

5.2 Provide adequate sidewalk space on heavily travelled pedestrian corridors; e.g. the corridor between BART and UC Campus.

5.3 Provide midblock pedestrian pathways where feasible to shorten pedestrian walking distances.

5.4 Design a pedestrian network which responds to the access needs of the physically disabled.

Objective 6

Provide for safe and convenient bicycle use as a means of transportation.

Policies:

6.1 Establish a safe and direct bicycle circulation system into the Downtown from residential areas.

6.2 Locate secure bicycle parking facilities near transit centers and major public and private buildings.

6.3 Require the provision of secure bicycle parking facilities by new developments, both public and private.

6. UNIVERSITY OF CALIFORNIA

Objective 1

Encourage the University to have a social and cultural presence in downtown.

Policies:

1.1 Encourage the University to provide access in the Downtown to information about cultural events and tickets.

1.2 Encourage the University to develop a museum on the history of the University in the Downtown.

1.3 Encourage the University to integrate campus cultural life with the Downtown by using Downtown facilities and by providing information on upcoming cultural activities.

Objective 2

Insure that University related development contributes positively to the Downtown.

Policies:

2.1 University development Downtown should be phased in accordance with the development phasing strategy outlined in the Transportation element and development that does occur should pay its share of development costs and impacts associated with housing, traffic, transit, parking, infrastructure and other impacts as may be identified.

2.2 University development Downtown should meet the identified goals and objectives of the Downtown Plan as well as the University Long Range Development Plan.

2.3 The University should limit campus development in accordance with the City's infrastructure capacity, using the limitations and monitoring procedures which the City is establishing for itself.

2.4 Encourage the University to evaluate the cumulative impacts of all projects in their Environmental documentation, not only incremental

impacts, and to analyze the impacts on surrounding City neighborhoods in addition to adjacent parcels.

2.5 Encourage the University to increase the visual integration between the Downtown and the University along the main view corridors.

Objective 3

Encourage the University to provide housing for students in and near the Downtown.

Policies:

3.1 Support the development of new housing for students that will not take additional land off the tax rolls, and that is compatible with existing development and the policies of the Downtown Plan.

7. LAND USE

Objective 1

Strengthen Downtown as a vital City Center offering employment, housing, recreational and cultural opportunities for Berkeley residents. Consider retail uses as a first priority, with residential uses second priority.

Policies:

1.1 Strengthen the Downtown's highly diversified land use mix and maintain the historic land use pattern of ground floor retail, commercial, and restaurant uses, with residential and office uses above.

1.2 Encourage land uses that will draw Berkeley residents to Downtown for shopping and other activities. Attract a major retail anchor (department store or shopping complex) to strengthen the retail sector and create a unique and successful Downtown shopping environment.

1.3 Encourage intensive retail and entertainment uses to locate Downtown. Ensure that zoning regulations for the, neighborhood commercial districts are more restrictive regarding regional uses (excluding South Berkeley) to encourage such businesses to locate in the Downtown.

1.4 Improve the opportunity for Downtown cultural activities. Encourage live performances, noon-time concerts and evening activities. Provide opportunities for Berkeley's craftspeople and artists. Improve and expand the existing arts and entertainment facilities.

1.5 Encourage residential development in and near Downtown for a variety of social and income groups. Strongly encourage mixed use developments that include retail, residential, and office uses. Preserve, upgrade and develop low and moderate income Downtown housing.

1.6 Offer development incentives (tax benefits, density bonuses) to encourage appropriate Downtown development. Encourage changes in use to promote land uses more compatible with the establishment of a vital, pedestrian-oriented com

Objective 2

Focus development and new land uses in the center of Downtown near transit facilities; minimize the impacts of development on adjacent neighborhoods by creating transitional buffer zones around the core.

Policies:

2.1 Cluster intense development activity in the central core area of the Downtown, and locate transitional uses and moderately scaled buildings in buffer zones along the edge.

2.2 Protect neighborhoods from adverse traffic impacts and parking spillover.

2.3 Provide support facilities for the Downtown core area uses in the adjacent buffer subareas.

2.4 Encourage neighborhood-serving commercial services in the buffer areas.

Policies for Sub-Areas

Core Area:

a) Focus development activity in the core area by permitting buildings to be taller and more dense than buildings in the buffer areas. Permit new construction up to 7 stories in specific locations in the core, and utilizing specific bonus provisions outlined on page.

b) Encourage the provision of off-site parking; discourage core development from providing on-site parking. Eliminate surface parking lots.

c) Permit demolition of small historically non-significant buildings in the core area if necessary to construct new building for a preferred use in the Downtown Plan. Discourage demolition of structures identified in the BAHA Historic Survey as Landmarks, Significant Structures or Contributing Structures.

d) Encourage the development of small parcels within the core, as opposed to their assembly into larger parcels.

e) Create a pedestrian-oriented zone, by requiring retail or public uses at the ground floor of buildings.

Oxford Street:

a) Increase the land use diversity in the area and encourage commercial businesses, restaurants, cultural uses and housing that serve both Downtown businesses and the campus community.

b) Strengthen the functional relationship between the campus and the downtown. Encourage special uses that link the campus and the Downtown such as cultural services, research and development offices, and commercial and business services.

c) Infill the existing gaps along the Oxford Edge to consolidate the Downtown edge, while maintaining a sense of openness and visual access to the hills and campus to the east.

d) Target currently vacant and/or underutilized sites along the Oxford edge as possible locations for residential development, especially student housing.

Civic Center/West Buffer:

a) Encourage cultural and community services to locate in the Veterans' Building.

b) Develop a design plan for Center Street to connect the Civic Center with BART and the Campus. (See Environmental Quality Element)

c) Find a location for a Youth Center in the Civic Center area. (See Social/Cultural Element)

d) Maintain Civic Center park as an open space.

e) Develop a parking facility in the area to prevent spillover into the adjacent neighborhood.

University Avenue/North Buffers:

a) Encourage the concentrations of ethnic restaurants and stores emerging along University Avenue.

b) Ground floor frontage should be devoted to retail or restaurant use.

South Shattuck:

As existing auto-oriented businesses relocate, guide changes in use to residential development with neighborhood-serving retail and commercial uses on ground floor.

North Shattuck:

Encourage residential development, with neighborhood-serving retail and commercial uses on ground floor.

8. ADDITIONAL DEVELOPMENT CONDITIONS FOR DOWNTOWN PROJECTS

The following additional conditions will be applied to all new construction or renovation projects in the Downtown area, whether a se Permit is required or not:

1. Emissions

In order to decrease emissions during the demolition and construction process, the following steps shall be required as part of the project sequencing and subject to review and approval of the City's Environmental Officer:

A. Dust Emissions

- Abatement of emissions through scheduling demolition on low wind speed days and the wetting of materials as needed before removal and during the construction period.
- Construction managers are to minimize emissions during the construction period. This can include watering the site at the beginning and end of each day, washing trucks prior to leaving the site, increasing the watering of the site when the wind speed exceeds 15 mph, and other requirements as may be determined.

B. Asbestos

- All buildings scheduled for demolition or extensive renovation shall be inspected and certified as being free of asbestos containing materials (ACM's). The contractor will certify to the City of Berkeley that the building is free from ACM's prior to the issuance of a demolition permit.
- If ACM's are discovered the demolition or renovation, all activity on the site will be discontinued until proper removal and disposal techniques utilizing qualified personnel, have been verified by the City of Berkeley Codes and Inspection Division.
- Any removal or disposal of ACM's will comply with all appropriate State guidelines for proper handling and disposal of such materials.

2. Hazardous Materials

A. Application

- Each application for a demolition permit and/or for new construction shall include an excavation and construction plan that outlines the time frames associated with each phase of the project, and an estimation of emissions of toxic air pollutants with an accompanying assessment of health risks. These plans will be routed to the Environmental Review Officer for review and approval prior to the issuance of any permits.

B. Investigation

- As part of the required submittals for either a building permit or demolition permit, the contractor or project manager shall submit a detailed study investigating the specific historic uses of the site to assist in determining if any site contamination may exist.

  Site contamination shall be defined as being any indication of previous land uses that may have stored toxins or potentially hazardous chemicals on the site or that ma~ have used such chemicals in the day-to-day activities of the previous owner of business.

C. Inspection

- A City of Berkeley inspector shall examine all sites requiring excavation to determine if any visible signs of soil or ground contamination has been uncovered. If contamination is apparent or suspected, the contractor or project manager shall insure that the contaminated materials are properly handled and disposed of.

3. Soil Stockpiles

- Soils stockpiled during excavation and/or construction shall be protected from surrounding properties and the elements by berming and by covering the storage piles to prevent the soil and other fill materials from being washed or blown into the City's storm drains.

4. Public Safety

A. Application

- Any application for new construction or renovation shall be distributed to the Police Department's Came Prevention Officer for review and comment on the safety aspects of the proposed design and development.

B. Design for Safety

- Proposals for substantial renovation, in excess of 15,000 square feet, or for new construction, shall include a plan for increased security for entrances, exits, windows, and other building entrances. Where feasible, the design of new structures and renovation of all sizes should be developed so as to promote the safety of pedestrians, shop occupants and owners.

C. Fire Protection

- As part of any submittal for new construction or renovation, project managers shall include adequate plans and materials addressing internal sprinklering and smoke detection systems, on site water supply (as required by State Law), as well as an evacuation plan.

5. Water Conservation Measures

- Water conserving features, such as conserving irrigation systems, landscaping materials, toilets and appliances, shall be provided in all new construction and renovation.

6. Seismic Safety

A. New Construction and Rehabilitation of Non-Historic Structures

- All projects shall be designed to withstand the effects if seismic ground shaking and settlement. Design of new structures shall incorporate the Seismic requirements of the Uniform Building Code in effect at the time, and any recommendations of the City's Engineering Division of the Department of Public Works.

B. Preservation, Restoration or Moving of Designated Historic Structures

- Structures designated as landmarks by the City's Landmark Preservation Commission shall comply with the seismic safety provision of the State Historical Building Code, (State of California, Title 24, Building Standards).

7. Construction and Traffic Noise

A. General Noise Abatement Requirements

- Construction equipment should be kept as far as possible from sensitive receptors.
- Acoustical shielding (temporary walls and noise barriers) should be provided around high noise producing equipment.
- Construction equipment should be monitored and inspected at periodic intervals to insure that the equipment is properly maintained and equipped with manufacturer's standard noise abatement devices, such as mufflers and engine covers.
- Effective acoustical mitigation measures such as walls with high sound transmission loss, double glazed windows and acoustic doors, should be incorporated into individual projects, for new buildings planned for construction in areas with high ambient noise levels.
- Non-noise sensitive areas, such as parking should be located nearest to noise sources.
- Noise sensitive rooms should be located away from noise sources.
- Windows that are oriented towards the noise source should be of minimum size.
- Traffic lights should be synchronized to improve vehicular flow and reduce unnecessary stop-and-go traffic.
- Acoustical noise reports should be submitted with applications for building permits, for sites having a CNEL greater than 60 dB.
- Detailed acoustical mitigation measures for each development should be evaluated when detailed plans are prepared.

Appendix C
HAZARDOUS MATERIALS DATABASE SEARCH

■ ■ ■

Database Search
for Environmental Sites
with Hazardous Materials

OVERVIEW MAP - The Earth Technology Corp.

▲ - Indicates environmental elements at elevations higher than or equal to the target property.

◆ - Indicates environmental elements at elevations lower than the target property.

- Coal Gasification Sites (if requested)

- National Priority List Sites

TARGET PROPERTY:	
ADDRESS:	
CITY/STATE/ZIP:	Berkeley CA 94704
LAT/LONG:	37.8712 / 122.272

CUSTOMER: The Earth Technology Corp.

MAP FINDINGS SUMMARY SHOWING
ALL SITES

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	0	0	NR	0
RCRIS-TSD		1.000	0	0	0	0	NR	0
AWP		1.000	0	0	0	0	NR	0
Cal-Sites		1.000	1	2	10	17	NR	30
Notify 65		1.000	0	0	0	0	NR	0
CHMIRS		1.000	1	0	0	7	NR	8
Cortese		1.000	5	6	29	29	NR	69
Toxic Pits		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
St. Landfill (SWIS)		0.500	0	0	0	NR	NR	0
LUST		0.500	3	1	6	NR	NR	10
UST		0.125	2	NR	NR	NR	NR	2
RAATS		TP	NR	NR	NR	NR	NR	0
SWAT		0.500	0	0	0	NR	NR	0
HWIS		0.125	0	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.125	5	NR	NR	NR	NR	5
RCRIS Lg. Quan. Gen.		0.125	1	NR	NR	NR	NR	1
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
Site Mitigation		TP	NR	NR	NR	NR	NR	0
Industrial Site		TP	NR	NR	NR	NR	NR	0
CA Unauthorized Rel.		TP	NR	NR	NR	NR	NR	0
CA Nonfuel Leaks		TP	NR	NR	NR	NR	NR	0
CA Bond Exp. Plan		1.000	0	0	0	0	NR	0
Coal Gas		1.000	0	0	1	1	NR	2

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS SUMMARY SHOWING
ONLY SITES HIGHER THAN OR THE SAME ALTITUDE AS TP

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	0	0	NR	0
RCRIS-TSD		1.000	0	0	0	0	NR	0
AWP		1.000	0	0	0	0	NR	0
Cal-Sites		1.000	1	1	8	14	NR	24
Notify 65		1.000	0	0	0	0	NR	0
CHMIRS		1.000	1	0	0	3	NR	4
Cortese		1.000	5	4	29	16	NR	54
Toxic Pits		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
St. Landfill (SWIS)		0.500	0	0	0	NR	NR	0
LUST		0.500	3	1	6	NR	NR	10
UST		0.125	2	NR	NR	NR	NR	2
RAATS		TP	NR	NR	NR	NR	NR	0
SWAT		0.500	0	0	0	NR	NR	0
HWIS		0.125	0	NR	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.125	5	NR	NR	NR	NR	5
RCRIS Lg. Quan. Gen.		0.125	1	NR	NR	NR	NR	1
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
Site Mitigation		TP	NR	NR	NR	NR	NR	0
Industrial Site		TP	NR	NR	NR	NR	NR	0
CA Unauthorized Rel.		TP	NR	NR	NR	NR	NR	0
CA Nonfuel Leaks		TP	NR	NR	NR	NR	NR	0
CA Bond Exp. Plan		1.000	0	0	0	0	NR	0
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
A1 SSE < 1/8 Higher	DON & REINHARDS INC 1917 ADDISON ST. BERKELEY, CA 94704	UST	U001599601 N/A

CA UST ID#: 00000014344

Tank #:	1	Container #:	1	Capacity #:	00000150
Year Installed:	1962	Tank Used for:	WASTE		
Type of Fuel:	WASTE OIL	Tank Construction:	55 gauge		
Leak Detection:	None				

A2 SSE < 1/8 Higher	DON & REINHARDS, INC. ADDISON ST (1917) BERKELEY, CA 94704	LUST Cortese	U000057721 N/A

LUST:

Facility ID:	01-0501
Release Date:	N/A
Date Cleaned:	N/A
Chemical	N/A
Lead Agency:	N/A
Substance:	N/A
Case Type:	N/A
Facility Status:	N/A
Last Review:	N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

A3 SSE < 1/8 Higher	1X CORREIA, FRANK ADDISON (1931) BERKELEY, CA 94704	Cortese	S100454360 N/A

CORTESE:
Facility ID: CAC000284825 Data Source: HWIS

A4 SSE < 1/8 Higher	HAMSEM TUNE UP 1933 ADDISON ST BERKELEY, CA 94703	FINDS RCRIS-LQG	1000379697 CAD981158868

RCRIS: Not Reported

A5 SSE < 1/8 Higher	CA. SCHOOL PROF. PSYCHOLOGY ADDISON ST (1900) BERKELEY, CA 94704	LUST Cortese	S100226171 N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
	CA. SCHOOL PROF. PSYCHOLOGY (Continued)		S100226171

LUST:
Facility ID: N/A
Release Date: 06/12/87
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Diesel
Case Type: N/A
Status: Preliminary site assessment underway
Last Review: N/A
Facility ID: 01-0253
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

A6 SSE < 1/8 Higher	1X CALIFORNIA SCHOOL OF PROFES ADDISON ST (1900) BERKELEY, CA 94704	Cortese	S100454359 N/A

CORTESE:
Facility ID: CAC000015602 Data Source: HWIS

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7 ESE < 1/8 Higher	USDA FS PSW EXPT STATION 1960 ADDISON ST BERKELEY, CA 94701	RCRIS-SQG FINDS	1000142528 CA1122390031

RCRIS:
Owner: DEPT OF AGRICULTURE
(415) 555-1212

Waste	Quantity	Info Source	Waste	Quantity	Info Source
D001	Not reported	Notification	D004	Not reported	Notification
U002	Not reported	Notification	U003	Not reported	Notification
U019	Not reported	Notification	U044	Not reported	Notification
U080	Not reported	Notification	U108	Not reported	Notification
U112	Not reported	Notification	U154	Not reported	Notification

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8 NNW < 1/8 Higher	FLAMINGO CLEANERS 1935 MARTIN LUTHER KING BERKELEY, CA 94704	RCRIS-SQG FINDS	1000300034 CAD981580269

RCRIS: Not Reported

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
B9 ENE < 1/8 Higher	FIRESTONE #3656 1974 UNIVERSITY AV. BERKELEY, CA 94704	UST	U001599605 N/A

CA UST ID#: 00000005855

Tank #:	1	Container #:	1	Capacity #:	00000075
Year Installed:	N/A	Tank Used for:	WASTE		
Type of Fuel:	WASTE OIL	Tank Construction:	N/A		
Leak Detection:	Visual				

B10 ENE < 1/8 Higher	FIRESTONE STORE #3656 1974 UNIVERSITY BERKELEY, CA 94704	RCRIS-SQG FINDS	1000223023 CAD981999766

RCRIS: Not Reported

11 SW < 1/8 Same	2121 MCKINLEY AVENUE BERKELEY, CA 94703	CHMIRS	S100221159 N/A

CHMIRS:

OES Control Number:	9099139	DOT ID:	N/A
DOT Hazard Class:	N/A		
Chemical Name:	DIESEL FUEL		
CAS Number:	N/A	Quantity Released:	2
Environmental Contamination:	Air	Property Use:	Harbor/Port
Incident Date:	19-APR-90	Date Completed:	19-APR-90

12 NNW < 1/8 Higher	GRAND AUTO, INC 1920 MARTIN LUTHER KING WAY BERKELEY, CA 94704	RCRIS-SQG FINDS	1000308745 CAD981398779

RCRIS: Not Reported

13 West < 1/8 Higher	JIM DOTEN'S FIDELITY 1824 UNIVERSITY AVE BERKELEY, CA 94703	RCRIS-SQG FINDS	1000111011 CAD981416654

RCRIS:
Owner: JIM DOTEN
(415) 555-1212

Waste	Quantity	Info Source	Waste	Quantity	Info Source
D000	Not reported	Notification	D001	Not reported	Notification
F003	Not reported	Notification	F005	Not reported	Notification

14 ESE < 1/8 Higher	TEKNEKRON INC 2118 MILVIA STREET BERKELEY, CA 94704	Cal-Sites	S100191913 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01730038 Current Status Date: 08/06/80

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
15 ENE < 1/8 Higher	UC BERKELEY CORP YARD MILVIA ST (2000) BERKELEY, CA	LUST Cortese	S100354876 N/A

LUST:
Facility ID: N/A
Release Date: 07/13/88
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Gasoline
Case Type: N/A
Status: No leak action taken by responsible party after initial report of leak
Last Review: N/A
Facility ID: 01-1516
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
C16 East 1/8-1/4 Higher	AUTOMOTIVE UNLIMITED 2020 ADDISON ST BERKELEY, CA 94704	RCRIS-SQG FINDS LUST Cortese	1000335045 CAD981572787

RCRIS:
Owner: BERT GORDON
(415) 555-1212

Waste	Quantity	Info Source	Waste	Quantity	Info Source
D000	Not reported	Notification	D001	Not reported	Notification
F002	Not reported	Notification	F004	Not reported	Notification

LUST:
Facility ID: N/A
Release Date: 06/17/88
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Gasoline
Case Type: N/A
Status: No leak action taken by responsible party after initial report of leak
Last Review: N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
	AUTOMOTIVE UNLIMITED (Continued) Facility ID: 01-0140 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A CORTESE: Facility ID: CAD981572787 Data Source: HWIS Facility ID: CAD981572787 Data Source: FINDS Facility ID: N/A Data Source: LTANK		1000335045
C17 East 1/8-1/4 Higher	1X AUTOMOTIVE UNLIMITED ADDISON ST (2020) BERKELEY, CA 94704 CORTESE: Facility ID: CAC000009449 Data Source: HWIS	Cortese	S100454363 N/A
D18 West 1/8-1/4 Lower	BERKELEY BLUE PRINT COMPANY 1798 UNIVERSITY AVENUE BERKELEY, CA 94703 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01730025 Current Status Date: 07/31/80	Cal-Sites	S100191903 N/A
D19 West 1/8-1/4 Lower	WICKLAND OIL CO REGAL STATION 1801 UNIVERSITY AVE BERKELEY, CA 94703 RCRIS: Not Reported CORTESE: Facility ID: CAD981417348 Data Source: HWIS	RCRIS-SQG FINDS Cortese	1000271106 CAD981417348
D20 West 1/8-1/4 Lower	REGAL UNIVERSITY AVE (1801) BERKELEY, CA 94703 CORTESE: Facility ID: N/A Data Source: LTANK	Cortese	S100226281 N/A
E21 East 1/8-1/4 Higher	ADDISON STREET PROPERTY ADDISON ST (2040) BERKELEY, CA 94716 CORTESE: Facility ID: N/A Data Source: LTANK	Cortese	S100454365 N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
E22 East 1/8-1/4 Higher	1X E L S DESIGN GROUP ADDISON ST (2040) BERKELEY, CA 94716 CORTESE: Facility ID: CAD000305219 Data Source: HWIS	Cortese	S100454364 N/A
23 ENE 1/8-1/4 Higher	INTERNATIONAL NEWS KEYUS 2042 UNIVERSITY AVENUE BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01270006 Current Status Date: 11/05/80	Cal-Sites	S100191123 N/A
24 ENE 1/4-1/2 Higher	OWL SHOE REPAIR 2001 SHATTUCK SQUARE BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01720006 Current Status Date: 12/04/80	Cal-Sites	S100191786 N/A
25 ESE 1/4-1/2 Higher	TROIEL COMPANIES INC 2150 SHATTUCK AVENUE BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01350064 Current Status Date: 12/04/80	Cal-Sites	S100191397 N/A
F26 ESE 1/4-1/2 Higher	AMERICAN RED CROSS ALLSTON WAY (2116) BERKELEY, CA 94704 CORTESE: Facility ID: N/A Data Source: LTANK	Cortese	S100454369 N/A
F27 ESE 1/4-1/2 Higher	1X THE AMERICAN RED CROSS ALLSTON WAY (2116) BERKELEY, CA 94704 CORTESE: Facility ID: CAC000555336 Data Source: HWIS	Cortese	S100454368 N/A
F28 ESE 1/4-1/2 Higher	TEKNEKRON 2121 ALLSTON WAY BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01730069 Current Status Date: 10/20/80	Cal-Sites	S100191942 N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
G29 NE 1/4-1/2 Higher	E Z SERVE SHATTUCK AVE (1849) BERKELEY, CA 94704 CORTESE: Facility ID: N/A Data Source: LTANK	Cortese	S100454471 N/A
G30 NE 1/4-1/2 Higher	HARKEN MARKETING CO OF CA SHATTUCK AVE (1849) BERKELEY, CA 94704 CORTESE: Facility ID: CAD981659485 Data Source: HWIS	Cortese	S100454470 N/A
31 East 1/4-1/2 Higher	CLINICAL PHARMACOLOGY RESEARCH INSTITUTE 2123 ADDISON STREET BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01890012 Current Status Date: 07/31/80	Cal-Sites	S100192063 N/A
H32 NE 1/4-1/2 Higher	1X CHEVRON STATION #9-1425 SHATTUCK AVE (1797) BERKELEY, CA 94708 CORTESE: Facility ID: CAC000058317 Data Source: HWIS	Cortese	S100454467 N/A
H33 NE 1/4-1/2 Higher	1X CHEVRON USA STATION #9-1425 SHATTUCK AVE (1797) BERKELEY, CA 94708 CORTESE: Facility ID: CAC000107173 Data Source: HWIS	Cortese	S100454466 N/A
H34 NE 1/4-1/2 Higher	CHEVRON SHATTUCK AVE (1797) BERKELEY, CA 94708 CORTESE: Facility ID: N/A Data Source: LTANK	Cortese	S100454469 N/A
H35 NE 1/4-1/2 Higher	1X CHEVRON USA, INC #9-1425 SHATTUCK AVE (1797) BERKELEY, CA 94708 CORTESE: Facility ID: CAC000156933 Data Source: HWIS	Cortese	S100454468 N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
36 NE 1/4-1/2 Higher	SHELL SHATTUCK AVE (1752) BERKELEY, CA 94709	Cortese	S100226265 N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

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37 SE 1/4-1/2 Higher	PAC BELL BANCROFT WAY (2115) BERKELEY, CA	LUST Cortese	S100226189 N/A

LUST:
Facility ID: N/A
Release Date: 12/24/85
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Diesel
Case Type: N/A
Status: No leak action taken by responsible party after initial report of leak
Last Review: N/A
Facility ID: 01-1110
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

I38 ENE 1/4-1/2 Higher	UC BERKELEY SITE GARAGE OXFORD ST (1952) BERKELEY, CA 94704	LUST Cortese	S100226232 N/A

LUST:
Facility ID: N/A
Release Date: 10/06/88
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Diesel
Case Type: N/A
Status: Preliminary site assessment underway
Last Review: N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
	UC BERKELEY SITE GARAGE (Continued) Facility ID: 01-1523 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A CORTESE: Facility ID: N/A Data Source: LTANK		S100226232
I39 ENE 1/4-1/2 Higher	CHEVRON BERKELEY WAY (2199) BERKELEY, CA CORTESE: Facility ID: N/A Data Source: LTANK	Cortese	S100226192 N/A
I40 ENE 1/4-1/2 Higher	GARAGE OXFORD ST (1952) BERKELEY, CA 94704 CORTESE: Facility ID: 68722 Data Source: UTANK	Cortese	S100454413 N/A
I41 ENE 1/4-1/2 Higher	1X CHEVRON USA, STATION #0-090 BERKELEY WAY (2199) BERKELEY, CA CORTESE: Facility ID: CAC000189528 Data Source: HWIS	Cortese	S100472131 N/A
I42 ENE 1/4-1/2 Higher	1X CHEVRON USA, STATION #0-090 BERKELEY WAY (2199) BERKELEY, CA CORTESE: Facility ID: CAC000209833 Data Source: HWIS	Cortese	S100472130 N/A
I43 ENE 1/4-1/2 Higher	1X CHEVRON USA INC., STATION # BERKELEY WAY (2199) BERKELEY, CA CORTESE: Facility ID: CAC000235189 Data Source: HWIS	Cortese	S100472059 N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
I44 ENE 1/4-1/2 Higher	CHEVRON STATION #90515 BERKELEY WAY (2199) BERKELEY, CA CORTESE: Facility ID: CAL000041710 Data Source: HWIS	Cortese	S100473832 N/A
I45 ENE 1/4-1/2 Higher	1X CHEVRON USA, STATION #9-051 BERKELEY WAY (2199) BERKELEY, CA CORTESE: Facility ID: CAC000172189 Data Source: HWIS	Cortese	S100472192 N/A
I46 ENE 1/4-1/2 Higher	EH&S/U.C. GARAGE OXFORD ST (1952) BERKELEY, CA 94704 CORTESE: Facility ID: 22900 Data Source: UTANK	Cortese	S100454414 N/A
47 East 1/4-1/2 Higher	KINKOS GRAPHICS 2138 OXFORD STREET BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01730094 Current Status Date: 10/22/80	Cal-Sites	S100191966 N/A
48 WNW 1/4-1/2 Lower	PACIFIC GAS AND ELECTRIC CO. 1644 HEARST AVE. BERKELEY, CA 94703 COAL GAS SITE DESCRIPTION: [1914 only. Gas supplied from Oakland. 1911 #55.] 1911 Pacific Gas & Electri e southwest corner of Hearst Ave and McGee. 1931 site is still called Pacific G	Coal Gas	G000000768 N/A
49 ENE 1/4-1/2 Higher	1X RUE-ELL ENTERPRISES OXFORD AVE (1900) BERKELEY, CA 94704 CORTESE: Facility ID: CAC000107861 Data Source: HWIS	Cortese	S100454412 N/A
J50 SE 1/4-1/2 Higher	1X G L M REAL ESTATE SERVICES, SHATTUCK AVE (2352) BERKELEY, CA 94704 CORTESE: Facility ID: CAC000201983 Data Source: HWIS	Cortese	S100454472 N/A

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Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
J51 SE 1/4-1/2 Higher	BERKELEY LINCOLN MERCURY SALES INC 2352 SHATTUCK AVE BERKELEY, CA 94704	FINDS LUST Cortese RCRIS-LQG UST	1000268540 CAD981446693

RCRIS: Not Reported

LUST:
- Facility ID: N/A
- Release Date: 11/05/87
- Date Cleaned: N/A
- Chemical N/A
- Lead Agency: Local Agency
- Substance: Gasoline
- Case Type: N/A
- Status: Preliminary site assessment underway
- Last Review: N/A
- Facility ID: 01-0196
- Release Date: N/A
- Date Cleaned: N/A
- Chemical N/A
- Lead Agency: N/A
- Substance: N/A
- Case Type: N/A
- Facility Status: N/A
- Last Review: N/A

CORTESE:
- Facility ID: CAL000000077 Data Source: HWIS
- Facility ID: CAD981446693 Data Source: HWIS
- Facility ID: CAX000203398 Data Source: HWIS
- Facility ID: N/A Data Source: LTANK

CA UST ID#: 00000059096
- Tank #: 1 Container #: 1 Capacity #: 00000200
- Year Installed: N/A Tank Used for: WASTE
- Type of Fuel: WASTE OIL Tank Construction: 1/4 inches
- Leak Detection: Stock Inventor

CA UST ID#: 00000059096
- Tank #: 2 Container #: 2 Capacity #: 00007400
- Year Installed: N/A Tank Used for: PRODUCT
- Type of Fuel: N/A Tank Construction: N/A
- Leak Detection: None

CA UST ID#: 00000059096
- Tank #: 3 Container #: 3 Capacity #: 00007400
- Year Installed: N/A Tank Used for: PRODUCT
- Type of Fuel: N/A Tank Construction: N/A
- Leak Detection: None

CA UST ID#: 00000059096
- Tank #: 4 Container #: 4 Capacity #: 00007400
- Year Installed: N/A Tank Used for: PRODUCT
- Type of Fuel: N/A Tank Construction: N/A
- Leak Detection: None

CA UST ID#: 00000059096
- Tank #: 5 Container #: 5 Capacity #: 00007350
- Year Installed: N/A Tank Used for: PRODUCT
- Type of Fuel: UNLEADED Tank Construction: N/A
- Leak Detection: Stock Inventor

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
J52 SE 1/4-1/2 Higher	1X BERKELEY LINCOLN MERCURY SHATTUCK AVE (2352) BERKELEY, CA 94704 CORTESE: Facility ID: CAD000321083 Data Source: HWIS	Cortese	S100454473 N/A
J53 SE 1/4-1/2 Higher	GLM REAL ESTATE SERVICES INC SHATTUCK AVE (2352) BERKELEY, CA 94704 CORTESE: Facility ID: CAL000038732 Data Source: HWIS	Cortese	S100454474 N/A
54 SSW 1/4-1/2 Lower	GINO VALENTE PAINTING 2338 ROOSEVELT AVENUE BERKELEY, CA 94703 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01170001 Current Status Date: 11/29/80	Cal-Sites	S100191020 N/A
55 WSW 1/4-1/2 Lower	BOBBO TRADING COMPANY 2124 CALIFORNIA STREET BERKELEY, CA 94703 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01500077 Current Status Date: 08/28/80	Cal-Sites	S100191731 N/A
56 SSE 1/4-1/2 Higher	GLM REAL ESTATE SERVICES CHANNING WAY (2029) BERKELEY, CA LUST: Facility ID: 01-0704 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A CORTESE: Facility ID: N/A Data Source: LTANK	LUST Cortese	S100272593 N/A
K57 ESE 1/4-1/2 Higher	TYPE-INK 2282 FULTON STREET BERKELEY, CA 94704 CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01730039 Current Status Date: 08/06/80	Cal-Sites	S100191914 N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
K58 ESE 1/4-1/2 Higher	DESIGN WEST 2288 FULTON STREET BERKELEY, CA 94704	Cal-Sites	S100191526 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01390001 Current Status Date: 11/05/80

L59 NNE 1/4-1/2 Higher	VIRGINIA CLEANERS 1667 SHATTUCK AVENUE BERKELEY, CA 94709	Cal-Sites	S100191884 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01720108 Current Status Date: 12/17/87

L60 NNE 1/4-1/2 Higher	BERKELEY VILLAGE SHATTUCK AVE (1663) BERKELEY, CA 94704	Cortese	S100454465 N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

L61 NNE 1/4-1/2 Higher	1X BERKELEY VILLAGE SHATTUCK AVE (1663) BERKELEY, CA 94704	Cortese	S100454464 N/A

CORTESE:
Facility ID: CAD981687791 Data Source: HWIS

M62 SE 1/4-1/2 Higher	TOYOTA OF BERKELEY 2400 SHATTUCK AVE BERKELEY, CA 94704	FINDS LUST Cortese RCRIS-LQG	1000342895 CAD981442767

RCRIS:
Owner: TIM SOUTHWICK
(415) 555-1212

Waste	Quantity	Info Source	Waste	Quantity	Info Source
D000	Not reported	Notification	D001	Not reported	Notification
F002	Not reported	Notification	F004	Not reported	Notification

LUST:
Facility ID: 01-1493
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: CAD981442767 Data Source: HWIS
Facility ID: N/A Data Source: LTANK

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
M63 SE 1/4-1/2 Higher	UC BERKELEY SHATTUCK (2401) BERKELEY, CA	LUST Cortese	S100226269 N/A

LUST:
Facility ID: 01-1514
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

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64 ENE 1/2-1 Higher	HEARST / ARCH BERKELEY, CA 94703	CHMIRS	S100275562 N/A

CHMIRS:

OES Control Number:	9000603	DOT ID:	N/A
DOT Hazard Class:	Corrosives		
Chemical Name:	IWT-4B CORROSION INHIBITOR		
CAS Number:	N/A	Quantity Released:	2
Environmental Contamination:	Ground	Property Use:	Educational
Incident Date:	09-MAR-90	Date Completed:	09-MAR-90

N65 West 1/2-1 Lower	UNOCAL SVC STA #1700 1499 UNIVERSITY AVE BERKELEY, CA 94702	RCRIS-SQG FINDS LUST Cortese UST	1000167098 CAD982054298

RCRIS: Not Reported

LUST:
Facility ID: N/A
Release Date: 04/24/86
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Gasoline
Case Type: N/A
Status: No leak action taken by responsible party after initial report of leak
Last Review: N/A
Facility ID: 01-1573
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: CAD982054298 Data Source: HWIS

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
	UNOCAL SVC STA #1700 (Continued)		1000167098

Facility ID: 4563 Data Source: UTANK
Facility ID: N/A Data Source: LTANK

CA UST ID#: 00000004563
Tank #: 1 Container #: 1700-1-1 Capacity #: 00010000
Year Installed: 1964 Tank Used for: PRODUCT
Type of Fuel: UNLEADED Tank Construction: N/A
Leak Detection: Stock Inventor

CA UST ID#: 00000004563
Tank #: 2 Container #: 1700-2-1 Capacity #: 00010000
Year Installed: 1964 Tank Used for: PRODUCT
Type of Fuel: PREMIUM Tank Construction: N/A
Leak Detection: Stock Inventor

CA UST ID#: 00000004563
Tank #: 3 Container #: 1700-4-1 Capacity #: 00000550
Year Installed: N/A Tank Used for: WASTE
Type of Fuel: WASTE OIL Tank Construction: N/A
Leak Detection: Stock Inventor

N66 West 1/2-1 Lower	GEORGES UNION 76 UNIVERSITY AVE (1499) BERKELEY, CA 94702	Cortese	S100454518 N/A

CORTESE:
Facility ID: CAL000019570 Data Source: HWIS

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67 SSE 1/2-1 Higher	CENTRAL LAUNDERETTE 2462 SHATTUCK AVENUE BERKELEY, CA 94704	Cal-Sites	S100191809 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01720031 Current Status Date: 12/05/80

O68 SSE 1/2-1 Same	HERRICK HOSPITAL & HEALTH CENTER 2001 DWIGHT WY BERKELEY, CA 94704	RCRIS-SQG FINDS LUST Cortese UST	1000361152 CAD073957789

RCRIS: Not Reported

LUST:
Facility ID: N/A
Release Date: 07/02/86
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Diesel
Case Type: N/A
Status: No leak action taken by responsible party after initial report of leak
Last Review: N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number

HERRICK HOSPITAL & HEALTH CENTER (Continued) — 1000361152

Facility ID: 01-0757
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: CAD073957789 Data Source: HWIS
Facility ID: CAD073957789 Data Source: FINDS
Facility ID: N/A Data Source: LTANK

CA UST ID#: 00000068648
Tank #: 1 Container #: 1 Capacity #: 00006000
Year Installed: 1966 Tank Used for: WASTE
Type of Fuel: N/A Tank Construction: X inches
Leak Detection: Stock Inventor

CA UST ID#: 00000068648
Tank #: 2 Container #: 2 Capacity #: 00020000
Year Installed: 1980 Tank Used for: PRODUCT
Type of Fuel: DIESEL Tank Construction: 3/8 inches
Leak Detection: Stock Inventor

O69 / SSE / 1/2-1 / Same — 1X ALTA-BATES-HERRICK HOSPITAL, DWIGHT WAY (2001), BERKELEY, CA 94704 — Cortese — S100454396 / N/A

CORTESE:
Facility ID: CAC000219153 Data Source: HWIS

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70 / WSW / 1/2-1 / Lower — WILLIES CLEANERS, 2179 SACRAMENTO STREET, BERKELEY, CA 94702 — Cal-Sites — S100191856 / N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01720079 Current Status Date: 08/06/80

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71 / WSW / 1/2-1 / Lower — SACRAMENTO / ALLSTON, BERKELEY, CA 94714 — CHMIRS — S100221120 / N/A

CHMIRS:
OES Control Number: 9099100 DOT ID: N/A
DOT Hazard Class: Corrosives
Chemical Name: ZAP SEWER CLEANER
CAS Number: N/A Quantity Released: 3
Environmental Contamination: 7 Property Use: County/City Road
Incident Date: 02-APR-90 Date Completed: 02-APR-90

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
72 NE 1/2-1 Higher	UC BERKELEY ARCH ST (1750) BERKELEY, CA	LUST Cortese	S100226182 N/A
	LUST: Facility ID: 01-1513 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A CORTESE: Facility ID: N/A Data Source: LTANK		
P73 SSE 1/2-1 Same	B B PLASTICS 2019 BLAKE STREET BERKELEY, CA 94704	Cal-Sites	S100191210 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01300032 Current Status Date: 10/21/80		
74 SE 1/2-1 Higher	ANDREW D DARVAS, INC 2161 DWIGHT WAY BERKELEY, CA 94704	Cal-Sites	S100191745 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01500091 Current Status Date: 07/31/80		
75 NNE 1/2-1 Higher	NORTH BERKELEY FRENCH LAUNDRY 1540 SHATTUCK AVENUE BERKELEY, CA 94709	Cal-Sites	S100191842 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01720065 Current Status Date: 08/11/80		
P76 SSE 1/2-1 Same	M D S SOFT-PRO 2034 BLAKE STREET BERKELEY, CA 94704	Cal-Sites	S100191413 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01350082 Current Status Date: 10/21/80		
P77 SSE 1/2-1 Same	KALMAR PROPERTY BLAKE ST (2036) BERKELEY, CA 94704	LUST Cortese	S100226193 N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
	KALMAR PROPERTY (Continued)		S100226193
	LUST: Facility ID: 01-0848 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A		
	CORTESE: Facility ID: N/A Data Source: LTANK		
P78 SSE 1/2-1 Same	TAYLOR CO BLAKE ST (2036) BERKELEY, CA 94704	Cortese	S100454374 N/A
	CORTESE: Facility ID: CAL000019158 Data Source: HWIS		
P79 SSE 1/2-1 Same	KANTOZ PROPERTY BLAKE ST (2036) BERKELEY, CA 94704	Cortese	S100454375 N/A
	CORTESE: Facility ID: N/A Data Source: LTANK		
80 NNE 1/2-1 Higher	BING WONS CLEANERS 1515 SHATTUCK AVENUE BERKELEY, CA 94704	Cal-Sites	S100191789 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01720010 Current Status Date: 11/05/80		
Q81 SSE 1/2-1 Higher	TOYOTA SHATTUCK AVE (2556) BERKELEY, CA 94704	LUST Cortese	S100354872 N/A
	LUST: Facility ID: N/A Release Date: 01/29/92 Date Cleaned: N/A Chemical N/A Lead Agency: Local Agency Substance: Waste Oil Case Type: N/A Status: Preliminary site assessment underway Last Review: N/A		

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
	TOYOTA (Continued)		S100354872

Facility ID: 01-1492
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

Q82 SSE 1/2-1 Higher	1X WELLS FARGO BANK/FLYNN TRUS SHATTUCK AVE (2556) BERKELEY, CA 94704	Cortese	S100454475 N/A

CORTESE:
Facility ID: CAC000534088 Data Source: HWIS

Q83 SSE 1/2-1 Higher	SHIELD HEALTHCARE SHATTUCK AVE (2567) BERKELEY, CA	LUST Cortese	S100226261 N/A

LUST:
Facility ID: N/A
Release Date: 04/03/87
Date Cleaned: N/A
Chemical N/A
Lead Agency: Local Agency
Substance: Misc. Motor Vehicle Fuels
Case Type: N/A
Status: No leak action taken by responsible party after initial report of leak
Last Review: N/A
Facility ID: 01-1386
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

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84 ENE 1/2-1 Higher	PACIFIC SCHOOL OF RELIGION 1798 SCENIC AVENUE BERKELEY, CA 94709	Cal-Sites	S100192046 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01820005 Current Status Date: 08/05/80

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
85 NNE 1/2-1 Higher	UPTOWN GRAPHICS AND FRAMING 2118 VINE STREET BERKELEY, CA 94709	Cal-Sites	S100191100 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01240026 Current Status Date: 01/07/81

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
R86 ENE 1/2-1 Higher	STAR KING SCHOOL FOR MINISTRY 2441 LE CONTE AVENUE BERKELEY, CA 94709	Cal-Sites	S100192049 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01820009 Current Status Date: 11/05/80

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
R87 ENE 1/2-1 Higher	SCHOOL OF APPLIED THEOLOGY 2450 LE CONTE AVENUE BERKELEY, CA 94709	Cal-Sites	S100192043 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01820002 Current Status Date: 11/05/80

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
88 WSW 1/2-1 Lower	2300 ACTON BERKELEY, CA 94702	CHMIRS	S100215530 N/A

CHMIRS:

OES Control Number:	909955	DOT ID:	N/A
DOT Hazard Class:	N/A		
Chemical Name:	N/A		
CAS Number:	N/A	Quantity Released:	N/A
Environmental Contamination:	N/A	Property Use:	County/City Road
Incident Date:	02-FEB-90	Date Completed:	02-FEB-90

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
89 NE 1/2-1 Higher	1573 ARCH ST. BERKELEY, CA	CHMIRS	S100280518 N/A

CHMIRS:

OES Control Number:	9990025	DOT ID:	1079
DOT Hazard Class:	Gases		
Chemical Name:	SULFUR DIOXIDE		
CAS Number:	7446-09-5	Quantity Released:	.1
Environmental Contamination:	Air	Property Use:	Residential
Incident Date:	18-JAN-88	Date Completed:	18-JAN-88

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
S90 SSE 1/2-1 Lower	UC FACILITIES MANAGEMENT DEPT CARLETON ST (2000) BERKELEY, CA 94720	Cortese	S100454381 N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
S91 SSE 1/2-1 Lower	UNIVERSITY OF CALIF BERKELEY CARLETON ST (2000) BERKELEY, CA 94720	Cortese	S100454380 N/A
	CORTESE: Facility ID: CAX000045441 Data Source: HWIS		
T92 WSW 1/2-1 Lower	CITY OF BERKELEY - YARD ALLSTON WAY (1328) BERKELEY, CA 94702	Cortese	S100226180 N/A
	CORTESE: Facility ID: N/A Data Source: LTANK		
T93 WSW 1/2-1 Lower	PUBLIC WORKS DEPT STRTS SANIT ALLSTON WAY (1328) BERKELEY, CA 94702	Cortese	S100454367 N/A
	CORTESE: Facility ID: CAD980888192 Data Source: FINDS		
T94 WSW 1/2-1 Lower	PUBLIC WRKS DEPT. STS & SANIT ALLSTON WAY (1328) BERKELEY, CA 94702	Cortese	S100454366 N/A
	CORTESE: Facility ID: CAD980888192 Data Source: HWIS		
T95 WSW 1/2-1 Lower	1326 ALLSTON WAY BERKELEY, CA 94702	CHMIRS	S100206589 N/A
	CHMIRS: OES Control Number: 9990026 DOT ID: 1789 DOT Hazard Class: Corrosives Chemical Name: ACID, MURIATIC CAS Number: 7647-01-0 Quantity Released: 1 Environmental Contamination: 7 Property Use: Industrial, Utility Incident Date: 28-MAR-88 Date Completed: 28-MAR-88		
96 ENE 1/2-1 Higher	GRADUATE THEOLOGICAL UNION 2465 LE CONTE AVENUE BERKELEY, CA 94709	Cal-Sites	S100192048 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01820008 Current Status Date: 08/01/80		
97 SSE 1/2-1 Higher	PIMLOTT MACHINE SHOP 2619 SHATTUCK AVENUE BERKELEY, CA 94704	Cal-Sites	S100191402 N/A

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
	PIMLOTT MACHINE SHOP (Continued)		S100191402
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01350070 Current Status Date: 08/05/80		
98 ENE 1/2-1 Higher	ZIBA PHOTOGRAPHICS 1846 EUCLID AVENUE BERKELEY, CA 94709	Cal-Sites	S100191965 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01730093 Current Status Date: 10/22/80		
99 West 1/2-1 Lower	ONE HOUR MARTINIZING #2 1319 UNIVERSITY AVENUE BERKELEY, CA 94702	Cal-Sites	S100191853 N/A
	CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC) Facility ID: 01720076 Current Status Date: 08/05/80		
U100 NNE 1/2-1 Higher	FREDDIE'S UNOCAL 76 ROSE ST (2101) BERKELEY, CA 94708	Cortese	S100454420 N/A
	CORTESE: Facility ID: CAL000034163 Data Source: HWIS		
U101 NNE 1/2-1 Higher	UNOCAL SVC STA #1745 ROSE ST (2101) BERKELEY, CA 94708	Cortese	S100454419 N/A
	CORTESE: Facility ID: CAD982054173 Data Source: HWIS		
U102 NNE 1/2-1 Higher	UNOCAL ROSE ST (2101) BERKELEY, CA 94708	Cortese	S100454421 N/A
	CORTESE: Facility ID: N/A Data Source: LTANK		
V103 SW 1/2-1 Lower	UNION OIL SS #3241 SACRAMENTO ST (2501) BERKELEY, CA 94702	Cortese	U000057703 N/A
	CORTESE: Facility ID: 31671 Data Source: UTANK		

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
V104 SW 1/2-1 Lower	UNOCAL SVC STA #3241 2501 SACRAMENTO ST BERKELEY, CA 94702	RCRIS-SQG FINDS LUST Cortese UST	1000167209 CAD982055501

RCRIS: Not Reported

LUST:
Facility ID: 01-1584
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: CAD982055501 Data Source: HWIS
Facility ID: N/A Data Source: LTANK

CA UST ID#: 00000060697
Tank #: 1 Container #: 3241-10-1 Capacity #: 00000000
Year Installed: 1968 Tank Used for: WASTE
Type of Fuel: N/A Tank Construction: 6 inches
Leak Detection: Visual

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105 ESE 1/2-1 Higher	INDEPENDENT BERKELEY STUDENT PUBLISHING 2490 CHANNING WAY BERKELEY, CA 94704	Cal-Sites	S100191129 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01270013 Current Status Date: 01/07/81

W106 SSE 1/2-1 Higher	H W MCKEVITT CO INC 2700 SHATTUCK AVE BERKELEY, CA 94705	FINDS Cortese RCRIS-LQG	1000123849 CAD981690803

RCRIS:
Owner: D MCKEVITT/T MCKEVITT/L M HILL
(415) 555-1212

Waste	Quantity	Info Source	Waste	Quantity	Info Source
D000	Not reported	Notification	D001	Not reported	Notification

CORTESE:
Facility ID: CAD981690803 Data Source: HWIS
Facility ID: CAD981690803 Data Source: FINDS

W107 SSE 1/2-1 Higher	MCKEVITT VOLVO SHATTUCK AVE (2700) BERKELEY, CA 94705	LUST Cortese	U000057733 N/A

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
	MCKEVITT VOLVO (Continued)		U000057733
	LUST: Facility ID: 01-1027 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A		
	CORTESE: Facility ID: N/A Data Source: LTANK		
W108 SSE 1/2-1 Higher	MC KEVITT VOLVO SHATTUCK AVE (2700) BERKELEY, CA 94705	Cortese	S100454476 N/A
	CORTESE: Facility ID: CAL000012218 Data Source: HWIS		
W109 SSE 1/2-1 Higher	1X WELLS FARGO BANK NA SHATTUCK AVE (2700) BERKELEY, CA 94705	Cortese	S100454477 N/A
	CORTESE: Facility ID: CAD000309013 Data Source: HWIS		
X110 SSW 1/2-1 Lower	KEITH PROPERTY SACRAMENTO ST (2598) BERKELEY, CA 94702	LUST Cortese	S100226239 N/A
	LUST: Facility ID: N/A Release Date: 02/03/86 Date Cleaned: N/A Chemical N/A Lead Agency: Local Agency Substance: Gasoline Case Type: N/A Status: No leak action taken by responsible party after initial report of leak Last Review: N/A Facility ID: 01-0855 Release Date: N/A Date Cleaned: N/A Chemical N/A Lead Agency: N/A Substance: N/A Case Type: N/A Facility Status: N/A Last Review: N/A		
	CORTESE: Facility ID: N/A Data Source: LTANK		

Map ID / Direction / Distance / Altitude	Site	Database(s)	EDR ID Number / EPA ID Number
X111 SSW 1/2-1 Lower	1X E J KEITH JR SACRAMENTO ST (2598) BERKELEY, CA 94702	Cortese	S100454422 N/A

CORTESE:
Facility ID: CAC000064805 Data Source: HWIS

---

112 NE 1/2-1 Higher	2525 HILL CT BERKELEY, CA 94704	CHMIRS	S100275151 N/A

CHMIRS:

OES Control Number:	8908344	DOT ID:	N/A
DOT Hazard Class:	N/A		
Chemical Name:	ASBESTOS		
CAS Number:	N/A	Quantity Released:	202
Environmental Contamination:	Air	Property Use:	Residential
Incident Date:	15-OCT-89	Date Completed:	15-OCT-89

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113 WSW 1/2-1 Lower	GAS HOLDER 2247 BONAR ST. BERKELEY DISTRICT, CA 94702	Coal Gas	G000000721 N/A

COAL GAS SITE DESCRIPTION:
1894 unidentified gas holder is on the western side of Bonar, and on the souther ison, and north of the intersection of Addison and Milva. By 19ll, printing sho y 1929, Chinese Laundry is on site.

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Y114 SSE 1/2-1 Lower	1X CALIF CUNOCAR INC STUART ST (2020) BERKELEY, CA 94703	Cortese	S100454489 N/A

CORTESE:
Facility ID: CAC000599046 Data Source: HWIS

Y115 SSE 1/2-1 Lower	CALIFORNIA CUNOCAR STUART ST (2020) BERKELEY, CA 94703	LUST Cortese	S100272598 N/A

LUST:
Facility ID: 01-0262
Release Date: N/A
Date Cleaned: N/A
Chemical N/A
Lead Agency: N/A
Substance: N/A
Case Type: N/A
Facility Status: N/A
Last Review: N/A

CORTESE:
Facility ID: N/A Data Source: LTANK

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
116 SW 1/2-1 Lower	DAVIS PAINTING AND DECORATING 1339 BLAKE STREET BERKELEY, CA 94702	Cal-Sites	S100191024 N/A

CAL-SITES Status: NFA (NO FURTHER ACTION FOR DTSC)
Facility ID: 01170005 Current Status Date: 12/01/80

Map ID Direction Distance Altitude	Site	Database(s)	EDR ID Number EPA ID Number
117 SW 1/2-1 Lower	1321 DWIGHT BERKELEY, CA 94702	CHMIRS	S100279435 N/A

CHMIRS:

OES Control Number:	8909456	DOT ID:	1830
DOT Hazard Class:	Corrosives		
Chemical Name:	ACID, SULFURIC		
CAS Number:	7664-93-9	Quantity Released:	60
Environmental Contamination:	N/A	Property Use:	Residential
Incident Date:	28-DEC-89	Date Completed:	28-DEC-89

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Reason
BERKELEY	S100928377	1X UNIVERSITY STUDENTS CO-OP			HWIS	7
BERKELEY	S100226177	GERMANY'S BEST INC.	ADDISON (1931)	94704	LUST, Cortese	7
BERKELEY	S100965791	GERMANY'S BEST INC.	1931 ADDISON ST	94704	LUST	1
BERKELEY	S100965732	DON & REINHARDS, INC.	1917 ADDISON ST	94704	LUST	1
BERKELEY	S100226172	BERKELEY GLASS	2011 ADDISON ST	94704	LUST	7
BERKELEY	S100226174	ADDISON STREET PROPERTY	2040 ADDISON ST	94704	LUST	7
BERKELEY	S100226179	HUB PAINT CENTER	ADELINE ST (2917)	94703	LUST, Cortese	3
BERKELEY	S100976473	CITY OF BERKELEY - YARD	1326 ALLSTON WAY	94702	LUST	1
BERKELEY	S100808986	BERKELEY YMCA	2001 ALLSTON ST	94704	LUST	7
BERKELEY	S100354715	AMERICAN RED CROSS	2116 ALLSTON WAY	94704	LUST	7
BERKELEY	S100966161	BERKELEY YMCA	2001 ALLSTON ST	94704	LUST	1
BERKELEY	S100965606	AMERICAN RED CROSS	2116 ALLSTON WAY	94704	LUST	1
BERKELEY	S100976166	BERKELEY PUMP PROJECT	BANCROFT WAY / 5TH		LUST	4
BERKELEY	S100862087	FIRESTATION #2	2029 BERKELEY WAY	94704	HWIS	7
BERKELEY	S100965684	CHEVRON	2199 BERKELEY WAY	94709	LUST	1
BERKELEY	S100206636	CHEVRON	2199 BERKELEY WAY	94704	LUST	7
BERKELEY	S100226199	CARDUCCI PROPERTY	2271 CEDAR ST	94709	LUST	7
BERKELEY	S100976184	CARDUCCI PROPERTY	2271 CEDAR ST	94709	LUST	2
BERKELEY	S100808987	TOLTEC PROPERTY	2148 CENTER ST	94704	LUST	1
BERKELEY	S100976266	GLM REAL ESTATE SERVICES	2029 CHANNING WAY	94704	LUST	1
BERKELEY	S100876854	UNIVERSITY OF CALIFORNIA BERKELEY	481 COWELL ST		HWIS	2
BERKELEY	S100226207	SOUTHERN PACIFIC	DELAWARE A VIRGINIA (NO STREET		LUST, Cortese	7
BERKELEY	S100354798	GOSS, ROSS, DOYLE TRUST	DURANT AVE (2140)	94704	LUST, Cortese	3
BERKELEY	S100272597	JACKSON PROPERTY	DURANT AVE (2131)	94704	LUST, Cortese	3
BERKELEY	S100226209	SHELL	DURANT (2200)	94704	LUST, Cortese	7
BERKELEY	S100965988	SHELL	2200 DURANT AVE	94704	LUST	1
BERKELEY	S100226216	CHEVRON	GILMAN / EASTSHORE (NO STREE		LUST, Cortese	5
BERKELEY	S100354743	CALTRANS	6TH/GROVE / JEFFERSON		LUST	6
BERKELEY	S100976181	CALTRANS	6TH/GROVE / JEFFERSON		LUST	4
BERKELEY	U001599606	GOODYEAR SERVICE CENTER	2099 MARTIN LUTHER KING JR WAY	94704	UST	3
BERKELEY	S100936288	GRAND AUTO, INC	1920 MARTIN LUTHER KING WAY	94704	HWIS	7
BERKELEY	S100936214	GOODYEAR AUTO SERVICE CENTER	2099 MARTIN LUTHER KING JR	94704	HWIS	7
BERKELEY	S100871190	PREMIER CLEANERS	2552 MARTIN LUTHER KING	94704	HWIS	7
BERKELEY	S100965836	KAYO	1900 MARTIN LUTHER KING	94704	LUST	1
BERKELEY	S100354811	KAYO	MARTIN LUTHER KING WAY (1900)		LUST, Cortese	7
BERKELEY	S100976328	NEIL E. SADLER CO.	1900 OXFORD ST	94704	LUST	1
BERKELEY	U000057727	NEIL E. SADLER CO.	OXFORD AVE (1900)	94704	LUST, Cortese	7
BERKELEY	S100180116	AUTO REPAIR - BERKELEY	2378/2366 SAN PABLO AVENUE	94702	Cal-Sites	1
BERKELEY	S100226249	COSHELL LAUNDRY	SAN PABLO AVE (1634)		Notify 65, LUST, Cortese	3
BERKELEY	1000247744	SOLID WASTE MGMT CTR	SECOND AND GILMAN STS	94704	Cal-Sites, CERCLIS, FINDS	1
BERKELEY	S100965899	NEWBERRY STATION	2929 SHATTUCK AVE	94703	LUST	1
BERKELEY	S100226267	E Z SERVE	1849 SHATTUCK AVE	94709	LUST	7
BERKELEY	S100965741	E Z SERVE	1849 SHATTUCK AVE	94709	LUST	1

Reason Codes:

1 = No matching street name
2 = No matching address range
3 = Multiple matching addresses / street intersections
4 = First street name in intersection not found
5 = Second street name in intersection not found
6 = Named streets do not intersect
7 = Other

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Reason
BERKELEY	S100226266	CHEVRON	1797 SHATTUCK AVE	94709	LUST	7
BERKELEY	S100226268	SOUTHSIDE PLAZA	2399 SHATTUCK AVE	94704	LUST	7
BERKELEY	S100976422	TOYOTA OF BERKELEY	2400 SHATTUCK	94704	LUST	1
BERKELEY	S100976403	SOUTHSIDE PLAZA	2399 SHATTUCK AVE	94704	LUST	1
BERKELEY	S100810216	UC BERKELEY (FORMER CHEVRON)	2401 SHATTUCK AVE	94704	LUST	1
BERKELEY	S100936058	GERRY WILKINSON CORP	1025 EAST SHORE HWY		HWIS	7
BERKELEY	S100876106	TISHMAN WEST COMPANIES	1995 UNIVERSITY AVENUE	94704	HWIS	7
BERKELEY	S100862124	FIRESTONE STORE #3656	1974 UNIVERSITY	94704	HWIS	7
BERKELEY	S100856357	BERKELEY BUILDER CONSTRUCTION INC	2058 UNIVERSITY AVE	94704	HWIS	7
BERKELEY	S100965952	REGAL	1801 UNIVERSITY AVE	94703	LUST	1
BERKELEY	S100976069	VILLA CNST CO. (BERKELEY VILL)	VIRGINIA / SHATTUCK		LUST	4

Appendix D
TRANSPORTATION TECHNICAL APPENDIX

■ ■ ■

TECHNICAL APPENDIX

Berkeley Civic Center Urban Design Plan/ Public Safety Building EIR

Transportation Chapter

A - Survey Data

B - LOS Calculations

- LOS Definitions
- Existing Conditions
- Existing Plan Project Conditions
- Cumulative Conditions

Appendix A

Transportation Setting Survey Data

- Peak Hour Intersection Counts

  - MLK/Addison
  - MLK/Allston
  - McKinley/Addison
  - McKinley/Allston

- Hall of Justice Trip Reduction Questionnaire (prepared for City)

- Police Department Patrol Schedule

- Vehicle and Pedestrian Trip Count Results

Peak Hour Intersection Counts

- MLK/Addison
- MLK/Allston
- McKinley/Addison
- McKinley/Allston

MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000001
Start Date: 07/19/95
File I.D. : MLKALL1
Page : 1

Start Time	M. LUTHER KING JR. WY. Southbound				ALLSTON WY. Westbound				M. LUTHER KING JR. WY. Northbound				ALLSTON WY. Eastbound				
	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Total
4:00pm	7	169	20	196	12	23	14	49	11	201	22	234	8	14	8	30	509
4:15	5	188	20	213	14	41	12	67	21	195	13	229	11	13	8	32	541
4:30	9	180	21	210	14	31	8	53	13	226	12	251	9	23	9	41	555
4:45	10	183	23	216	21	31	15	67	14	235	16	265	12	30	10	52	600
Hour Total	31	720	84	835	61	126	49	236	59	857	63	979	40	80	35	155	2205
5:00pm	11	207	21	239	21	45	23	89	12	202	10	224	11	29	7	47	599
5:15	11	200	28	239	19	44	27	90	20	218	9	247	17	23	12	52	628
5:30	9	170	14	193	18	42	21	81	19	247	16	282	10	15	10	35	591
5:45	7	177	15	199	25	31	12	68	23	256	12	291	9	16	6	31	589
Hour Total	38	754	78	870	83	162	83	328	74	923	47	1044	47	83	35	165	2407
Grand	69	1474	162	1705	144	288	132	564	133	1780	110	2023	87	163	70	320	4612
% of Total	1.5%	32.0%	3.5%		3.1%	6.2%	2.9%		2.9%	38.6%	2.4%		1.9%	3.5%	1.5%		
Apprch %				37.0%				12.2%				43.9%				6.9%	
% of Apprch	4.0%	86.5%	9.5%		25.5%	51.1%	23.4%		6.6%	88.0%	5.4%		27.2%	50.9%	21.9%		

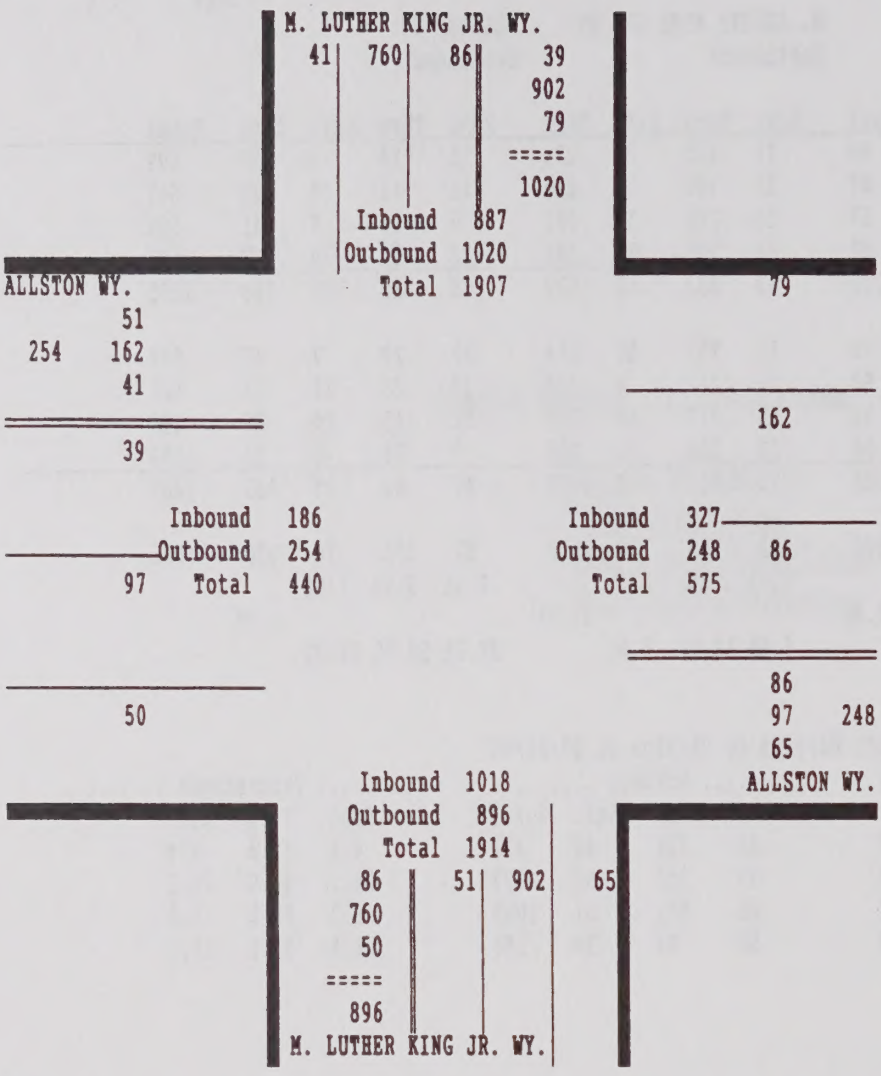
Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 07/19/95

Direction	Street Name	Start Peak Hour	Peak Hr Factor	..... Volumes ..... Rght	Thru	Left	Total	..... Percentages ..... Rght	Thru	Left
Southbound	M. LUTHER KING JR. WY.	04:45pm	.928	41	760	86	887	4.6	85.6	9.6
Westbound	ALLSTON WY.		.908	79	162	86	327	24.1	49.5	26.2
Northbound	M. LUTHER KING JR. WY.		.902	65	902	51	1018	6.3	88.6	5.0
Eastbound	ALLSTON WY.		.894	50	97	39	186	26.8	52.1	20.9

MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000001
Start Date: 07/19/95
File I.D. : MLKALL1
Page : 2



MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000002
Start Date: 07/19/95
File I.D. : MLKADD1
Page : 1

Start Time	M. LUTHER KING JR. WY. Southbound				ADDISON ST. Westbound				M. LUTHER KING JR. WY. Northbound				ADDISON ST. Eastbound				
	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Total
4:00pm	11	190	7	208	20	1	0	21	7	210	9	226	12	0	1	13	468
4:15	9	214	12	235	22	0	0	22	6	211	14	231	22	0	0	22	510
4:30	11	192	7	210	32	1	1	34	6	258	15	279	23	1	0	24	547
4:45	12	208	11	231	32	0	0	32	11	264	13	288	17	0	0	17	568
Hour Total	43	804	37	884	106	2	1	109	30	943	51	1024	74	1	1	76	2093
5:00pm	6	220	10	236	37	0	0	37	8	240	8	256	19	0	0	19	548
5:15	9	236	8	253	17	1	1	19	10	255	17	282	15	1	0	16	570
5:30	8	194	7	209	31	2	0	33	16	278	12	306	18	0	2	20	568
5:45	9	190	11	210	36	1	0	37	10	273	18	301	19	1	0	20	568
Hour Total	32	840	36	908	121	4	1	126	44	1046	55	1145	71	2	2	75	2254
Grand	75	1644	73	1792	227	6	2	235	74	1989	106	2169	145	3	3	151	4347
% of Total	1.7%	37.8%	1.7%		5.2%	.1%	0.0%		1.7%	45.8%	2.4%		3.3%	.1%	.1%		
Apprch %				41.2%				5.4%				49.9%				3.5%	
% of Apprch	4.2%	91.7%	4.1%		96.6%	2.6%	.9%		3.4%	91.7%	4.9%		96.0%	2.0%	2.0%		

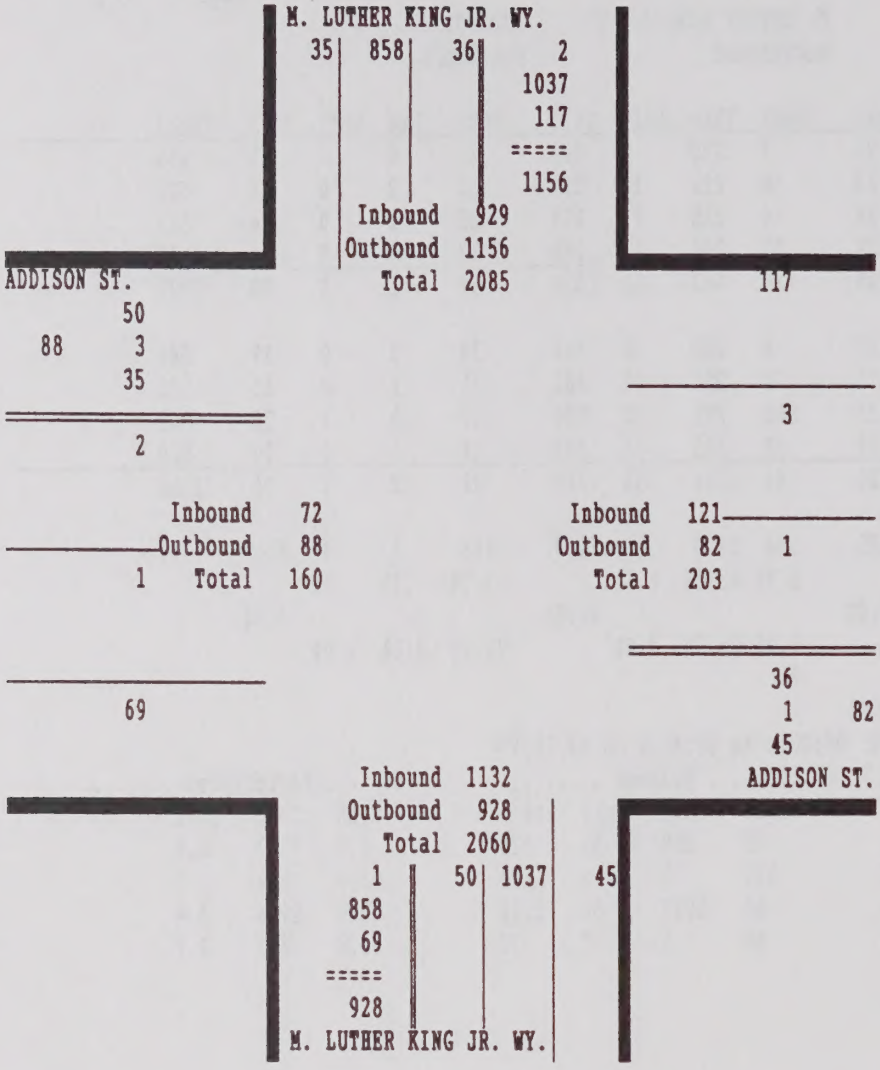
Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 07/19/95

Direction	Street Name	Start Peak Hour	Peak Hr Factor	..... Volumes ..... Rght	Thru	Left	Total	..... Percentages ..... Rght	Thru	Left
Southbound	M. LUTHER KING JR. WY.	04:45pm	.918	35	858	36	929	3.7	92.3	3.8
Westbound	ADDISON ST.		.818	117	3	1	121	96.6	2.4	.8
Northbound	M. LUTHER KING JR. WY.		.925	45	1037	50	1132	3.9	91.6	4.4
Eastbound	ADDISON ST.		.900	69	1	2	72	95.8	1.3	2.7

MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000002
Start Date: 07/19/95
File I.D. : MLKADD1
Page : 2



MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000003
Start Date: 07/20/95
File I.D. : MCKALL1
Page : 1

Start Time	McKINLEY AVE. Southbound				ALLSTON WY. Westbound				McKINLEY AVE. Northbound				ALLSTON WY. Eastbound				
	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Rght	Thru	Left	Totl	Total
4:00pm	5	1	10	16	16	44	2	62	3	1	2	6	0	17	5	22	106
4:15	2	1	6	9	6	39	3	48	2	3	0	5	1	18	4	23	85
4:30	4	1	8	13	2	31	2	35	3	1	0	4	1	30	4	35	87
4:45	4	1	9	14	6	40	2	48	3	1	3	7	1	30	8	39	108
Hour Total	15	4	33	52	30	154	9	193	11	6	5	22	3	95	21	119	386
5:00pm	5	4	8	17	6	50	3	59	3	3	1	7	0	37	1	38	121
5:15	3	4	7	14	7	49	3	59	2	1	3	6	1	34	3	38	117
5:30	2	2	8	12	7	34	2	43	2	3	3	8	1	25	2	28	91
5:45	3	1	6	10	3	36	4	43	3	4	2	9	0	23	4	27	89
Hour Total	13	11	29	53	23	169	12	204	10	11	9	30	2	119	10	131	418
Grand	28	15	62	105	53	323	21	397	21	17	14	52	5	214	31	250	804
% of Total	3.5%	1.9%	7.7%		6.6%	40.2%	2.6%		2.6%	2.1%	1.7%		.6%	26.6%	3.9%		
Apprch %				13.1%				49.4%				6.5%				31.1%	
% of Apprch	26.7%	14.3%	59.0%		13.4%	81.4%	5.3%		40.4%	32.7%	26.9%		2.0%	85.6%	12.4%		

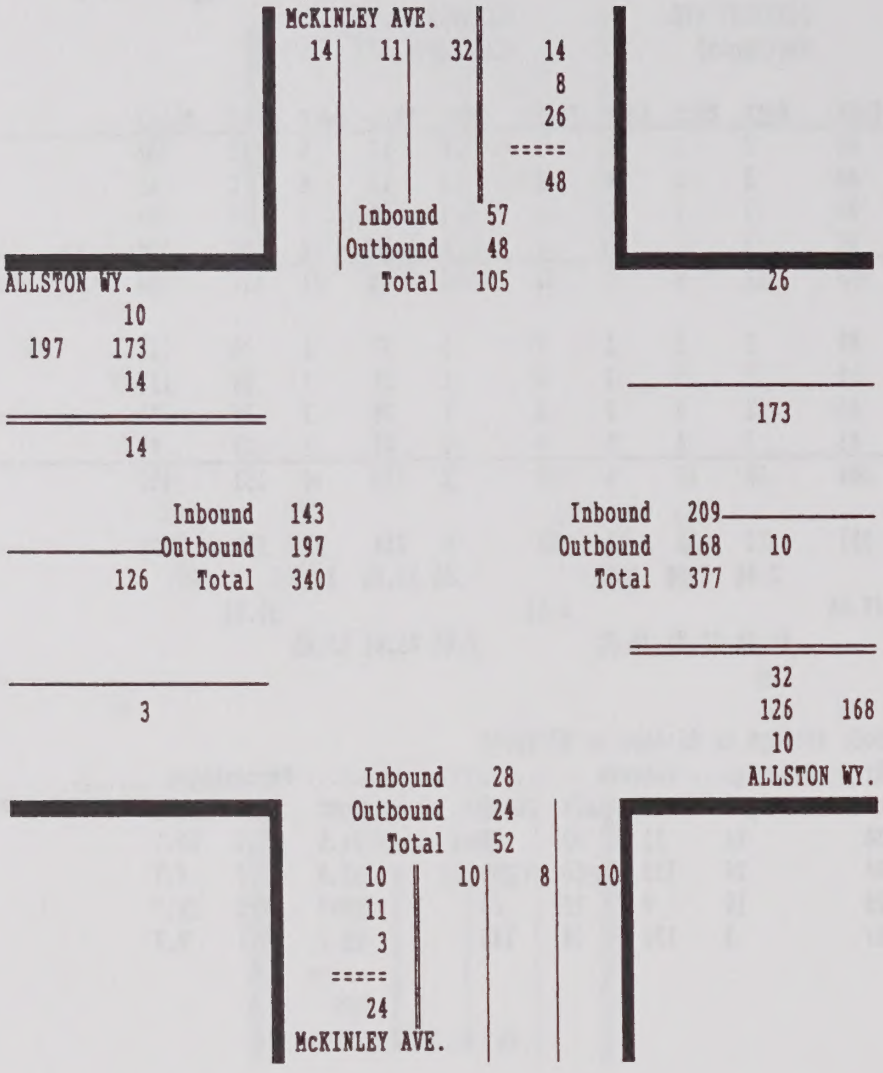
Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 07/20/95

Direction	Street Name	Start Peak Hour	Peak Hr Factor	..... Volumes ..... Rght	Thru	Left	Total	..... Percentages ..... Rght	Thru	Left
Southbound	McKINLEY AVE.	04:45pm	.838	14	11	32	57	24.5	19.2	56.1
Westbound	ALLSTON WY.		.886	26	173	10	209	12.4	82.7	4.7
Northbound	McKINLEY AVE.		.875	10	8	10	28	35.7	28.5	35.7
Eastbound	ALLSTON WY.		.917	3	126	14	143	2.0	88.1	9.7

MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000003
Start Date: 07/20/95
File I.D. : MCKALL1
Page : 2



MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000004
Start Date: 07/20/95
File I.D. : MCKADD1
Page : 1

Start Time	Southbound Rght	Thru	Left	Totl	ADDISON ST. Westbound Rght	Thru	Left	Totl	McKINLEY AVE. Northbound Rght	Thru	Left	Totl	ADDISON ST. Eastbound Rght	Thru	Left	Totl	Total
4:00pm	0	0	0	0	0	13	3	16	13	0	9	22	8	13	0	21	59
4:15	0	0	0	0	0	8	4	12	4	0	6	10	3	7	0	10	32
4:30	0	0	0	0	0	13	7	20	7	0	5	12	5	8	0	13	45
4:45	0	0	0	0	0	22	3	25	3	0	3	6	6	6	0	12	43
Hour Total	0	0	0	0	0	56	17	73	27	0	23	50	22	34	0	56	179
5:00pm	0	0	0	0	0	25	4	29	3	0	8	11	2	5	0	7	47
5:15	0	0	0	0	0	19	5	24	5	0	7	12	4	3	0	7	43
5:30	0	0	0	0	0	23	2	25	3	0	9	12	1	7	0	8	45
5:45	0	0	0	0	0	18	6	24	6	0	8	14	6	7	0	13	51
Hour Total	0	0	0	0	0	85	17	102	17	0	32	49	13	22	0	35	186
Grand	0	0	0	0	0	141	34	175	44	0	55	99	35	56	0	91	365
% of Total	0.0%	0.0%	0.0%		0.0%	38.6%	9.3%		12.1%	0.0%	15.1%		9.6%	15.3%	0.0%		
Apprch %								47.9%				27.1%				24.9%	
% of Apprch	0.0%	0.0%	0.0%		0.0%	80.6%	19.4%		44.4%	0.0%	55.6%		38.5%	61.5%	0.0%		

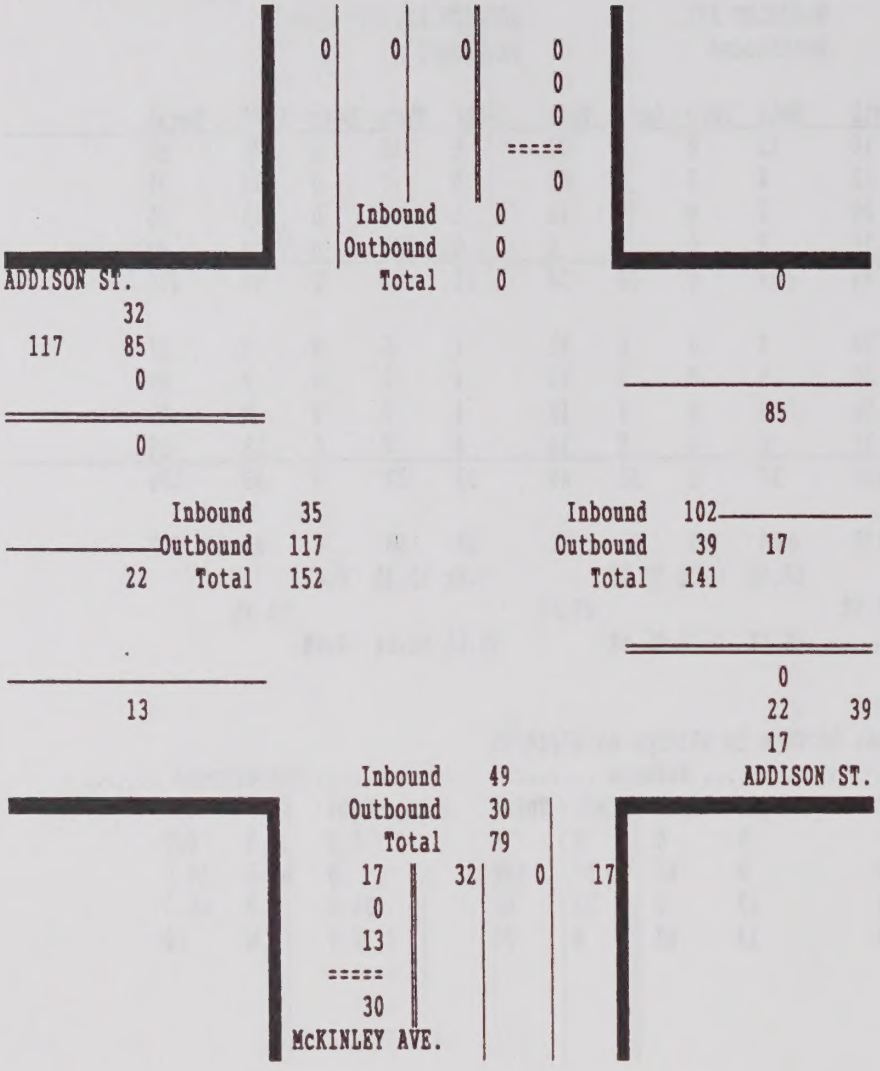
Peak Hour Analysis By Entire Intersection for the Period: 04:00pm to 05:45pm on 07/20/95

Direction	Street Name	Start Peak Hour	Peak Hr Factor	..... Volumes ..... Rght	Thru	Left	Total	..... Percentages ..... Rght	Thru	Left
Southbound		05:00pm	.0	0	0	0	0	0.0	0.0	0.0
Westbound	ADDISON ST.		.879	0	85	17	102	.0	83.3	16.6
Northbound	McKINLEY AVE.		.875	17	0	32	49	34.6	.0	65.3
Eastbound	ADDISON ST.		.673	13	22	0	35	37.1	62.8	.0

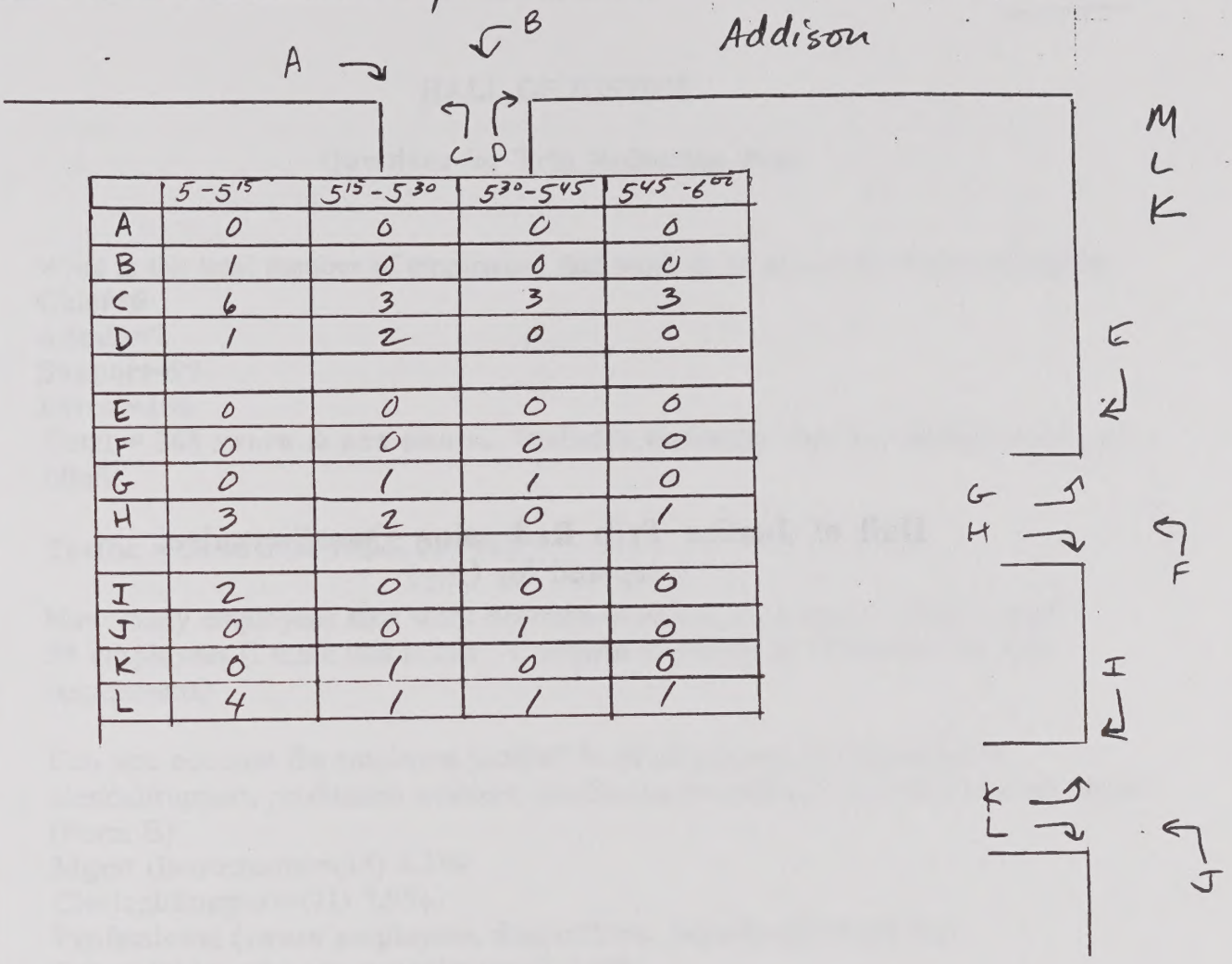
MARKS TRAFFIC DATA SERVICE

CITY OF BERKELEY

Site Code : 00000004
Start Date: 07/20/95
File I.D. : MCKADD1
Page : 2

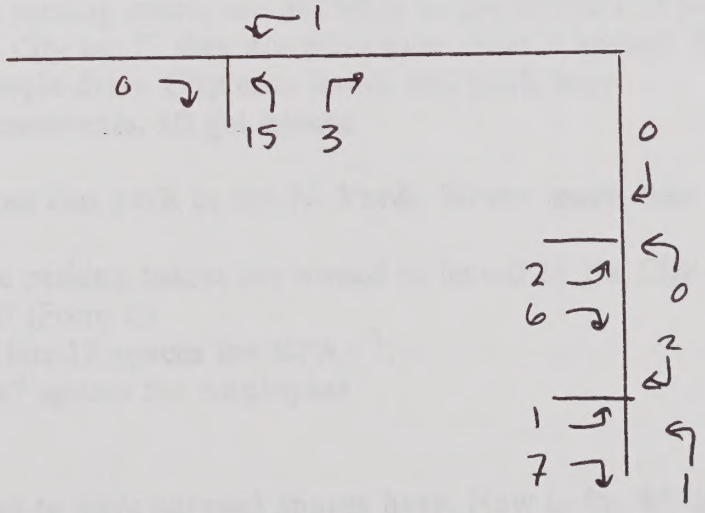


Court Lot Driveway Counts | 7/30/96



	5-5¹⁵	5¹⁵-5³⁰	5³⁰-5⁴⁵	5⁴⁵-6⁰⁰
A	0	0	0	0
B	1	0	0	0
C	6	3	3	3
D	1	2	0	0
E	0	0	0	0
F	0	0	0	0
G	0	1	1	0
H	3	2	0	1
I	2	0	0	0
J	0	0	1	0
K	0	1	0	0
L	4	1	1	1

DRIVEWAY VOLUMES, 5⁰⁰-6⁰⁰ PM



Hall of Justice Trip Reduction Questionnaire
(prepared for City)

Police

HALL OF JUSTICE

Questions for Trip Reduction Plan

1. What is the total number of employees that work at or out of the Hall of Justice?
Chief=6
Admin=7
Support=99
Patrol=156
Total = 268 sworn & non-sworn. Includes vacancies that are authorized to be filled.

Traffic = 38 at 3140 MLK Jr Way

2. How many employees start work between 6-10 am, on a typical WEEK day?
99 employees (I think this is low. Compare to survey at 107, with 106 non-respondents)

3. Can you estimate the employee profile? % of employees in management, clerical/support, production workers, professional/technical, customer service, other. (Form B)
Mgmt (lieutenants)=(14) 5.2%
Clerical/Support=(21) 7.9%
Professional (sworn employees, dispatchers, jailers)=(228) 85.4%
Other (aides who are part-time)=(4) 1.5%

4. What is the maximum number of employees on-site at one time? (Form C)
137 employees at 4:30pm on a Wednesday (shift change).

5. How many on-site parking spaces are available to employees (for parking their personal cars, or a City car IF they are allowed to drive it home)? (Form C)
North Yard: 7 people drive City cars home and park here
5 lieutenants, all get spaces
Total = 12
After 5 pm, women can park in the N. Yard. Never more than 4 people.

6. How many off-site parking spaces are owned or leased by the City for use by Hall of Justice employees? (Form C)
North McKinley lot: 17 spaces for BPA
Hinks Garage: 17 spaces for employees
Total = 34

South Yard: Used to have carpool spaces here. Now is for BUSD and some R permits. No Police here.
South McKinley lot: City owned undercover cars.

7. How many employees work a 4/10 schedule?
Patrol units = 112
Others = 14
Bike patrol = 9
TOTAL = 135

How many start b/w 6-10 am?
=34

8. How many employees work a 9/80 schedule?
Total = 5

How many start b/w 6-10
= 5

9. Do any employees work a 3/36 schedule? If so, how many?
NO

10. Is there any other "compressed work week" schedule at the Hall of Justice? A compressed work week eliminates at least one round trip to and from work.
NO

11. Is there any written policy describing the 4/10 or 9/80 work schedule policies?
YES for both.

12. Can employees choose to work a compressed work week? Can they choose which type of work week schedule to work, or is only one type allowed?
4/10: If work in patrol, then have to work this schedule, unless one has a special assignment. Not a matter of choice.
9/80: Certain positions and categories are assigned this schedule.

13. Are there any storage facilities for bike parking (for employee's personal bikes)? If so, what are they?
Inside: At south end of bldg near weight room there is room for 12 bikes. Not a formal storage area. Allowed to park bike inside with staff approval.
Outside: Can lock bike inside the fenced-in yard, to gates, fences.

14. Are clothes lockers provided for employees? If so, how many? Are there separate lockers for men and women?
Separate lockers for men and women.
Lockers for: sworn employees (198), Police Service Assts-PSAs (20), Public Safety Dispatchers-PSDs (30), and Aides (4). Total = about 252
Sworn employees, PSAs get long lockers. PSDs get short or long lockers.

15. Are there showers provided for employees? If so, how many for men and how many for women?
Men = 7 showers total
Women = 3 showers at least

16. Where are the showers and clothes lockers located in relation to the work site and common areas?
Men: 2 areas at ground level, south and east side of bldg. More showers on 4th floor off the gym.
Women: Gound level, north side.

17. Can any employee use the lockers and showers?
Lockers: Yes, can request one if don't have one.
Showers: Yes

18. Number of employees who start a CWW schedule w/w 6-10a, M-F.

4/10 → 34 people (Patrol Shifts
① M-Th → 12 officers
② F-Sun → 12 officers
Man. start @ 11am.

9/80 → 5 people

Police Department Patrol Schedule

Patrol team scheduling is as follows:

TEAM	SUN	MON	TUE	WED	THU	FRI	SAT
1 (12)	OFF	0630 to 1630	0630 to 1630	0630 to 1630	0630 to 1630	OFF	OFF
2 (11)	0630 to 1630	1100 to 2100	OFF	OFF	OFF	0630 to 1630	0630 to 1630
3 (10)	1100 to 2100	OFF	OFF	OFF	1100 to 2100	1100 to 2100	1100 to 2100
4 (9)	1600 to 0200	1600 to 0200	1600 to 0200	1600 to 0200	OFF	OFF	OFF
5 (12)	2045 to 0645	2045 to 0645	2045 to 0645	2045 to 0645	OFF	OFF	OFF
6 (11)	OFF	OFF	OFF	1100 to 2100	1600 to 0200	1600 to 0200	1600 to 0200
7 (11)	OFF	OFF	1100 to 2100	OFF	2045 to 0645	2045 to 0645	2045 TO 0645

READINGS	FIRST PLATOON Date	Read by	SECOND PLATOON Date	Read by	THIRD PLATOON Date	Read by	FOURTH PLATOON Date	Read by	DETECTIVE DIVISION Date	Read by
First										
Second										
Third										

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6. Community Relations Lieutenant
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10. Patrol Division Captain
11. Traffic Bureau Sergeant
12. Service Division Captain

Vehicle and Pedestrian Trip Count Results

VEHICLE & PEDESTRIAN STUDY

at the Police and Fire Department Buildings

on McKinley Avenue in Berkeley

7/26/1995 4:00 - 6:00 pm

Time Ending		4:15pm		4:30		4:45		5:00		5:15		5:30		5:45		6:00pm	
Movements		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
	P1	1	1	1	0	1	0	0	3	1	7	0	2	1	0	2	3
	P2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	P3	0	0	1	0	1	0	0	1	0	0	1	1	0	0	0	0
	P4	10	10	4	1	2	1	1	9	1	5	4	4	5	8	1	5
	P5	0	2	2	4	2	4	2	5	1	3	0	1	1	2	0	1
	P6	15	5	4	7	2	10	6	10	4	6	7	7	14	3	6	6
	P7	1	0	3	2	3	2	0	1	4	2	1	1	2	2	0	0
	P8	0	0	1	1	1	2	1	0	0	3	1	2	3	3	1	0
	P9	2	7	0	3	1	6	0	4	1	3	0	1	2	5	3	6
	P10	0	0	1	0	1	3	0	2	4	1	0	0	2	4	0	0
V1	Cars	8	6	4	4	4	3	2	13	3	3	5	7	5	2	2	4
	Bikes	1	0	0	0	0	2	0	0	2	0	0	1	2	0	1	1
V2	Cars	0	0	1	0	1	3	0	0	0	1	0	0	0	1	0	0
	Bikes	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
	Total	38	31	22	23	20	37	12	48	21	34	19	28	37	30	16	26

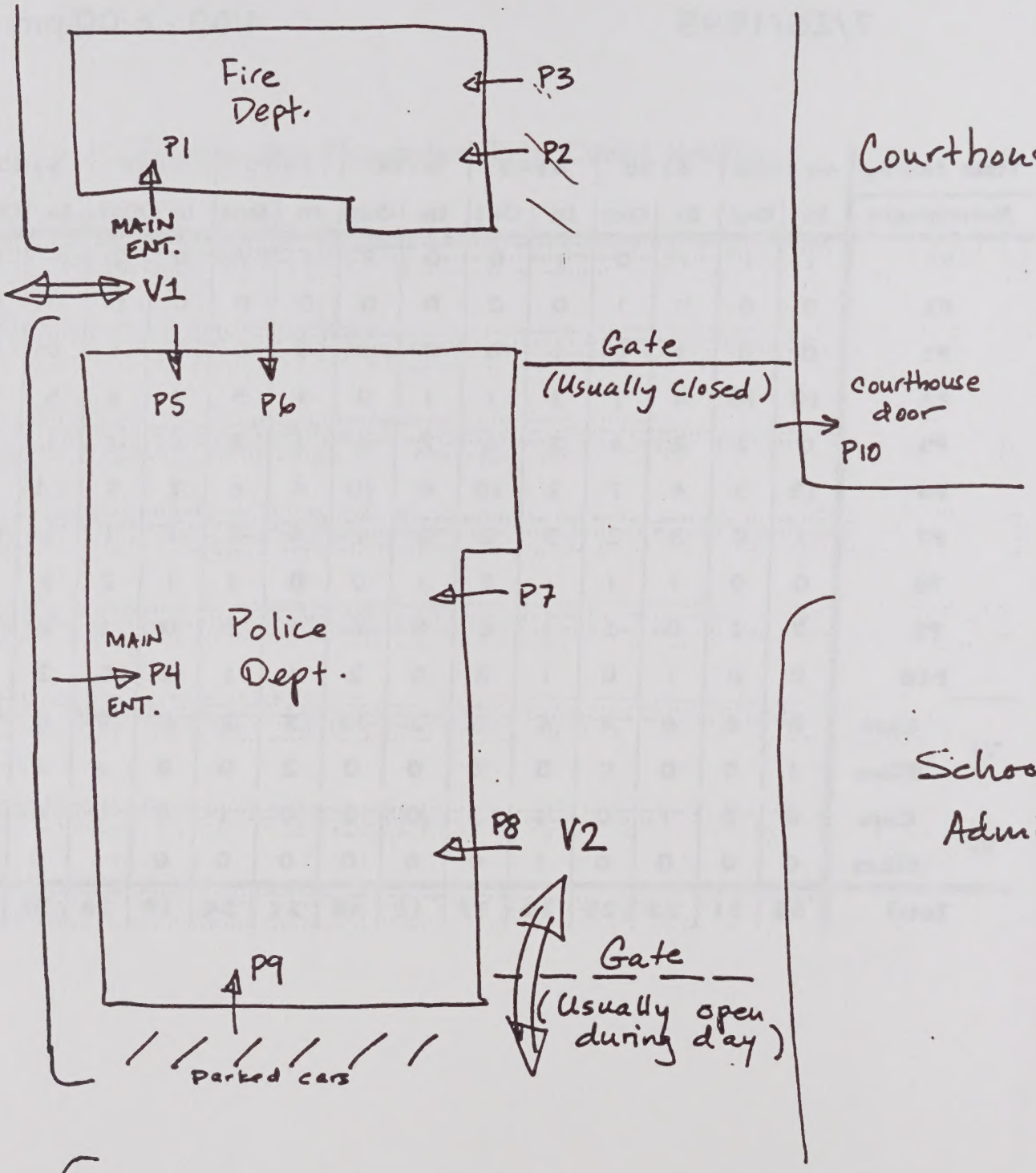
COM : MARKS TRAFFIC DATA SERVICE PHONE NO. : 510 210 0625 JUL. 26 1995 01:11PM P01

Fehr & Peers Associates, Inc.
Transportation Consultants

3685 Mt Diablo Blvd
Suite 301
Lafayette, CA 94549
510 284-3200
FAX 510 284-2691

BY _____ DATE _____ CLIENT _____ SHEET NO. _____ OF _____

CHECKED _____ DATE _____ JOB _____ JOB NO. _____



Appendix B

Level of Service Calculations

- LOS Definitions
- Existing Conditions
- Existing Plus Project Condition
- Cumulative Conditions

LOS Definitions

LOS DEFINITIONS

Signalized Intersections

Level of Service	Description	Average Delay (sec/veh)
A	Progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.	≤5.0
B	Progression is good and slightly more vehicles have to stop.	>5.0 and ≤15.0
C	Progression is fair. The number of vehicles stopping is significant, though most vehicles do not have to stop. Individual cycle failures may begin to appear.	>15.0 and ≤25.0
D	Progression is unfavorable and results in longer delays. Many vehicles stop. Individual cycle failures and the influence of congestion become noticeable.	>25.0 and ≤40.0
E	Progression is poor. Considered by many agencies to be the limit of acceptable delay. Individual cycle failures are frequent occurrences.	>40.0 and ≤60.0
F	Progression is extremely poor. Unacceptable to most drivers, this level occurs when arrival flow rates exceed the capacity of the intersection.	>60.0

Unsignalized Intersections

Level of Service	Description	Average Delay (sec/veh)
A	Little or no delay	>5.0
B	Short traffic delay	>5.0 and ≤10.0
C	Average traffic delay	>10.0 and ≤20.0
D	Long traffic delay	>20.0 and ≤30.0
E	Very long traffic delay, failure, extreme congestion	>30.0 and ≤45.0
F	Intersection blocked by external causes	>45.0

Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board, 1994.

Existing Conditions

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: JN File Name: EXUNIMLK.HC9
Area Type: Other 6-13-96 5 -6 PM
Comment: EXISTING CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	31
Effective Green Time for Lane Group, g	25.2
Opposing Effective Green Time, go	22.2
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	260
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	5.06
Adjusted Opposing Flow Rate, Vo	931
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.05
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.68
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	16.67
gu=g-gq (or g-gf)	8.53
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.41
fmin	0.16
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	20.2
Effective Green Time for Lane Group, g	22.2
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	102
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.98
Adjusted Opposing Flow Rate, Vo	934
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.08
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.49
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	22.20
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.44
fmin	0.18
fm,(min=fmin;max=1.00)	0.18
flt=[fm+0.91(N-1)]/N	0.18

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: JN File Name: EXUNIMLK.HC9
Area Type: Other 6-13-96 5 -6 PM
Comment: EXISTING CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	252	0.97	260	L	260	1	1.000	1.000	260	1.00	0.00
Thru	780	0.97	804	TR	890	2	1.050	1.000	934	0.00	0.10
Right	83	0.97	86								
SB											
Left	99	0.97	102	L	102	1	1.000	1.000	102	1.00	0.00
Thru	719	0.97	741	TR	887	2	1.050	1.000	931	0.00	0.16
Right	142	0.97	146								
EB											
Left	104	0.97	107	L	107	1	1.000	1.000	107	1.00	0.00
Thru	689	0.97	710	TR	795	2	1.050	1.000	835	0.00	0.11
Right	82	0.97	85								
WB											
Left	147	0.97	152	L	152	1	1.000	1.000	152	1.00	0.00
Thru	943	0.97	972	TR	1040	2	1.050	1.000	1092	0.00	0.07
Right	66	0.97	68								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.16	276
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.98	1.00	3534
SB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.18	313
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3503
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.14	242
TR	1900	2	0.93	0.98	1.00	1.00	1.00	1.00	0.98	1.00	3409
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.20	346
TR	1900	2	0.97	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3200

* Value entered by user.

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: JN File Name: EXUNIMLK.HC9
Area Type: Other 6-13-96 5 -6 PM
Comment: EXISTING CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	<	1	2	<	1	2	<	1	2	<
Volumes	252	780	83	99	719	142	104	689	82	147	943	66
PHF or PK15	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Lane W (ft)	10.0	11.0		10.0	11.0		10.0	10.0		10.0	11.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	Y	20
Bus Stops			0			0			0			0
Con. Peds			93			32			68			96
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*	*			EB Left	*			
Thru	*	*			Thru	*			
Right	*	*			Right	*			
Peds	*	*			Peds	*			
SB Left		*			WB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds		*			Peds	*			
EB Right					NB Right				
WB Right					SB Right				
Green	7.5P	20.2P			Green	28.5P			
Yellow/AR	3.3	5.0			Yellow/AR	5.5			

Cycle Length: 70 secs Phase combination order: #1 #2 #5

Effective Green Time for Lane Group, g	31
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.08
Adjusted Opposing Flow Rate, Vo	1092
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.62
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.63
gu=g-gq (or g-gf)	19.37
fs=(875-0.625Vo)/1000	0.19
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.13
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5
Effective Green Time for Lane Group, g	31
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	152
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.96
Adjusted Opposing Flow Rate, Vo	835
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.12
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	6.65
gu=g-gq (or g-gf)	24.35
fs=(875-0.625Vo)/1000	0.35
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	6.30
fmin	0.13
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: JN File Name: EXUNIMLK.HC9
Area Type: Other 6-13-96 5 -6 PM
Comment: EXISTING CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB Lsec.	5	276	0.018	0.360	103	0.049	
Lpri.	255	1652	0.154	0.154	255	1.000	*
Ltot.	260				358	0.726	
TR	934	3534	0.264	0.514	1817	0.514	
SB							
L	102	313	0.326	0.317	103	0.990	*
TR	931	3503	0.266	0.317	1111	0.838	
EB							
L	107	242	0.442	0.443	107	0.998	*
TR	835	3409	0.245	0.443	1510	0.553	
WB							
L	152	346	0.439	0.443	153	0.992	
TR	1092	3200	0.341	0.443	1417	0.771	

Sum (v/s) critical = 0.922
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 1.009

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.726	0.309	9.7	1.000	358	16	4.9	14.6	B	10.0	B
TR	0.514	0.514	8.5	1.000	1817	16	0.2	8.7	B		
SB											
L	0.990	0.317	18.1	1.000	103	16	64.9	83.0	F	27.1	D
TR	0.838	0.317	16.9	1.000	1111	16	4.1	21.0	C		
EB											
L	0.998	0.443	14.8	0.846	107	12	57.4	69.9	F	16.4	C
TR	0.553	0.443	10.9	0.846	1510	12	0.3	9.5	B		
WB											
L	0.992	0.443	14.7	0.846	153	12	46.1	58.6	E	17.7	C
TR	0.771	0.443	12.5	0.846	1417	12	1.4	12.0	B		

Intersection Delay = 17.5 sec/veh Intersection LOS = C

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: JN File Name: EXUNIMLK.HC9
Area Type: Other 6-13-96 5 -6 PM
Comment: EXISTING CONDITIONS

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	260
v/c ratio (x)	0.73
Primary phase effective green	10.80
gq from Supplemental LT Worksheet	16.67
gu from Supplemental LT Worksheet	8.53
Red time (r)	34.00
Arrivals qa = v/(3600(max(x,1)	0.07
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.23
Xperm	0.94
Xprot	0.65
Case	1
Queue at begining of green arrow (Qa)	2.46
Queue at beginning of unsaturated green (Qu)	1.20
Residual queue (Qr)	0.00
Uniform Delay	9.66

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Ph: (904) 392-0378

Streets: (N-S) MARTING LUTHER KING (E-W) ADDISON
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... JN
Date of Analysis..... 6/13/96
Other Information.....
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 2	< 0	0	> 2	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	50	1037	45	36	858	35	2	1	69	1	3	117
PHF	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	601	496
Potential Capacity: (pcph)	687	776
Movement Capacity: (pcph)	687	776
Prob. of Queue-Free State:	0.79	0.89
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	1202	992
Potential Capacity: (pcph)	388	503
Movement Capacity: (pcph)	388	503
Prob. of Queue-Free State:	0.89	0.88
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.84	0.80
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	2265	2270
Potential Capacity: (pcph)	52	51
Capacity Adjustment Factor due to Impeding Movements	0.67	0.67
Movement Capacity: (pcph)	35	34
Prob. of Queue-Free State:	0.91	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	2226	2222
Potential Capacity: (pcph)	40	40
Major LT, Minor TH Impedance Factor:	0.65	0.62
Adjusted Impedance Factor:	0.73	0.70
Capacity Adjustment Factor due to Impeding Movements	0.65	0.56
Movement Capacity: (pcph)	26	22

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	2	22	>					
EB	T	1	34	>	383	12.2	1.0	C	12.2
EB	R	85	776	>					
WB	L	1	26	>					
WB	T	3	35	>	442	12.2	1.7	C	12.2
WB	R	143	687	>					
NB	L	62	503			8.2	0.4	B	0.4
SB	L	44	388			10.5	0.4	C	0.4

Intersection Delay = 1.4 sec/veh

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Streets: (N-S) MARTIN LUTHUR KING (E-W) CENTER
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....EXISING CONDITIONS
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2 < 0		0	> 2	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		947	73	66	860					64		147
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	537	
Potential Capacity: (pcph)	740	
Movement Capacity: (pcph)	740	
Prob. of Queue-Free State:	0.77	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	1074	
Potential Capacity: (pcph)	454	
Movement Capacity: (pcph)	454	
Prob. of Queue-Free State:	0.83	
TH Saturation Flow Rate: (pcphpl)	3400	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.77	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	2010	
Potential Capacity: (pcph)	55	
Major LT, Minor TH Impedance Factor:	0.77	
Adjusted Impedance Factor:	0.77	
Capacity Adjustment Factor due to Impeding Movements	0.77	
Movement Capacity: (pcph)	42	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	74	42		569.1	5.9	F	177.0
WB R	171	740		6.3	1.0	B	
SB L	76	454		9.5	0.6	B	0.7

Intersection Delay = 17.6 sec/veh

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Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: EXALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	<	1	2	<	1	1	<	1	1	<
Volumes	51	902	65	86	760	41	39	97	50	86	162	79
PHF or PK15	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	(Y/N)	Y	20	(Y/N)	Y	20	(Y/N)	Y	20	(Y/N)	Y	20
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
EB Right					NB Right				
WB Right					SB Right				
Green	38.0A				Green	26.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 70 secs Phase combination order: #1 #5

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: EXALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	51	0.90	57	L	57	1	1.000	1.000	57	1.00	0.00
Thru	902	0.90	1002	TR	1074	2	1.050	1.000	1128	0.00	0.07
Right	65	0.90	72								
SB											
Left	86	0.90	96	L	96	1	1.000	1.000	96	1.00	0.00
Thru	760	0.90	844	TR	890	2	1.050	1.000	934	0.00	0.05
Right	41	0.90	46								
EB											
Left	39	0.90	43	L	43	1	1.000	1.000	43	1.00	0.00
Thru	97	0.90	108	TR	164	1	1.000	1.000	164	0.00	0.34
Right	50	0.90	56								
WB											
Left	86	0.90	96	L	96	1	1.000	1.000	96	1.00	0.00
Thru	162	0.90	180	TR	268	1	1.000	1.000	268	0.00	0.33
Right	79	0.90	88								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.14	265
TR	1900	2	1.00	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3319
SB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.11	196
TR	1900	2	1.00	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3327
EB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.41	761
TR	1500	1	1.00	0.98	1.00	0.80	1.00	1.00	0.95	1.00	1116
WB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.60	1113
TR	1500	1	1.00	0.98	1.00	0.80	1.00	1.00	0.95	1.00	1119

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: EXALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	38
Effective Green Time for Lane Group, g	38
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	57
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.11
Adjusted Opposing Flow Rate, Vo	934
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.08
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.46
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	8.21
gu=g-gq (or g-gf)	29.79
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	5.51
fmin	0.11
fm,(min=fmin;max=1.00)	0.14
flt=[fm+0.91(N-1)]/N	0.14

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	38
Effective Green Time for Lane Group, g	38
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	96
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.87
Adjusted Opposing Flow Rate, Vo	1128
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.97
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.46
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.60
gu=g-gq (or g-gf)	26.40
fs=(875-0.625Vo)/1000	0.17
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.89
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	26

Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	43
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.84
Adjusted Opposing Flow Rate, Vo	268
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	5.21
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.63
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	4.70
gu=g-gq (or g-gf)	21.30
fs=(875-0.625Vo)/1000	0.71
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	2.01
fmin	0.15
fm,(min=fmin;max=1.00)	0.41
flt=[fm+0.91(N-1)]/N	0.41

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	26
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	96
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.87
Adjusted Opposing Flow Rate, Vo	164
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	3.19
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.63
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	1.41
gu=g-gq (or g-gf)	24.59
fs=(875-0.625Vo)/1000	0.77
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	1.58
fmin	0.15
fm,(min=fmin;max=1.00)	0.60
flt=[fm+0.91(N-1)]/N	0.60

HCS: Signalized Intersection Version 2.4c 08-08-1996 4

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: EXALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	57	265	0.215	0.543	144	0.396
TR	1128	3319	0.340	0.543	1802	0.626
SB						
L	96	196	0.490	0.543	106	0.902 *
TR	934	3327	0.281	0.543	1806	0.517
EB						
L	43	761	0.057	0.371	283	0.152
TR	164	1116	0.147	0.371	415	0.396
WB						
L	96	1113	0.086	0.371	413	0.232
TR	268	1119	0.239	0.371	416	0.645 *

Sum (v/s) critical = 0.729
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.798

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib Delay d 2	d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.396	0.543	7.1	0.850	144	16	1.0	7.0	B	7.6	B
TR	0.626	0.543	8.4	0.850	1802	16	0.5	7.7	B		
SB											
L	0.902	0.543	10.9	0.850	106	16	39.9	49.2	E	10.7	B
TR	0.517	0.543	7.7	0.850	1806	16	0.2	6.8	B		
EB											
L	0.152	0.371	11.1	0.850	283	16	0.0	9.5	B	10.5	B
TR	0.396	0.371	12.3	0.850	415	16	0.3	10.8	B		
WB											
L	0.232	0.371	11.5	0.850	413	16	0.1	9.8	B	13.0	B
TR	0.645	0.371	13.8	0.850	416	16	2.4	14.1	B		

Intersection Delay = 9.7 sec/veh Intersection LOS = B

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University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: JN File Name: EXDWMLK.HC9
Area Type: Other 6-12-96 5 -6 PM
Comment: EXISTING CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes		> 2	<		> 2	<		> 2	<			
Volumes	77	885	29	149	1074	73	68	440	86			
PHF or PK15	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Lane W (ft)		10.0			10.0			11.0				
Grade		0			0			0				
% Heavy Veh	2	2	2	2	2	2	2	2	2			
Parking	(Y/N)	N		(Y/N)	Y	20	(Y/N)	N				
Bus Stops			4			4			4			
Con. Peds			36			56			44			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N				
Arr Type		3			3			3				
RTOR Vols			0			0			0			
Lost Time	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left		*			EB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds		*			Peds	*			
SB Left	*	*			WB Left				
Thru	*	*			Thru				
Right	*	*			Right				
Peds	*	*			Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	6.0A	35.0A			Green	18.0A			
Yellow/AR	3.0	4.0			Yellow/AR	4.0			

Cycle Length: 70 secs Phase combination order: #1 #2 #5

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: JN File Name: EXDWMLK.HC9
Area Type: Other 6-12-96 5 -6 PM
Comment: EXISTING CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	77	0.90	86	*DfL	86	1	1.000	1.000	86	1.00	0.00
Thru	885	0.90	983	TR	1015	1	1.000	1.000	1015	0.00	0.03
Right	29	0.90	32								
SB											
Left	149	0.90	166								
Thru	1074	0.90	1193	LTR	1440	2	1.050	1.000	1512	0.12	0.06
Right	73	0.90	81								
EB											
Left	68	0.90	76								
Thru	440	0.90	489	LTR	661	2	1.050	1.000	694	0.11	0.15
Right	86	0.90	96								
WB											

* Denotes a De facto Left-Turn Lane Group

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
DfL	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.10	178
TR	1900	1	0.93	0.98	1.00	1.00	0.98	1.00	0.99	1.00	1702
SB											
LTR	1900	2	0.93	0.98	1.00	0.90	0.99	1.00	0.99	0.78	2410
EB											
LTR	1900	2	0.97	0.98	1.00	1.00	0.99	1.00	0.98	0.99	3464
WB											

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: JN File Name: EXDWMLK.HC9
Area Type: Other 6-12-96 5 -6 PM
Comment: EXISTING CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	35
Effective Green Time for Lane Group, g	39
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	86
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.67
Adjusted Opposing Flow Rate, Vo	1512
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	14.70
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.36
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	9.10
gu=g-gq (or g-gf)	29.90
fs=(875-0.625Vo)/1000	0.00
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
Ell	8.20
fmin	0.10
fm, (min=fmin;max=1.00)	0.10
flt=[fm+0.91(N-1)]/N	0.10

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	20.2
Effective Green Time for Lane Group, g	25.2
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	102
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.98
Adjusted Opposing Flow Rate, Vo	933
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.07
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.32
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	25.20
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
Ell	7.43
fmin	0.16
fm, (min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5

Effective Green Time for Lane Group, g	34
Opposing Effective Green Time, go	34
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.08
Adjusted Opposing Flow Rate, Vo	1021
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.93
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.35
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.28
gu=g-gq (or g-gf)	22.72
fs=(875-0.625Vo)/1000	0.24
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.12
fm,(min=fmin;max=1.00)	0.12
flt=[fm+0.91(N-1)]/N	0.12

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5
Effective Green Time for Lane Group, g	34
Opposing Effective Green Time, go	34
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	152
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.96
Adjusted Opposing Flow Rate, Vo	745
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	7.24
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.35
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.08
gu=g-gq (or g-gf)	26.92
fs=(875-0.625Vo)/1000	0.41
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	5.27
fmin	0.12
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: JN File Name: EXDWMLK.HC9
Area Type: Other 6-12-96 5 -6 PM
Comment: EXISTING CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB							
DfL	86	178	0.483	0.557	103	0.835	
TR	1015	1702	0.596	0.557	948	1.070	
SB							
LTR	1512	2410	0.627	0.643	1549	0.976	*
EB							
LTR	694	3464	0.200	0.271	940	0.738	*
WB							

Sum (v/s) critical = 0.828
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.905

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
DfL	0.835	0.557	9.8	0.850	103	16	27.9	36.2	D	52.6	E
TR	1.070	0.557	11.8	0.850	948	16	44.0	54.0	E		
SB											
LTR	0.976	0.643	9.1	0.850	1549	16	13.0	20.8	C	20.8	C
EB											
LTR	0.738	0.271	17.7	0.850	940	16	2.2	17.2	C	17.2	C
WB											

Intersection Delay = 30.6 sec/veh Intersection LOS = D

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) McKINLEY (E-W) ADDISON
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... JN
Date of Analysis..... 6/13/96
Other Information.....
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0	1 < 0		0	> 1 < 0		0	0	0
Stop/Yield			N			N						
Volumes		22	13		85	17	32	0	17			
PHF		.67	.67		.88	.88	.88	.88	.88			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's							1.10	1.10	1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	42	
Potential Capacity: (pcph)	1318	
Movement Capacity: (pcph)	1318	
Prob. of Queue-Free State:	0.98	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	158	
Potential Capacity: (pcph)	901	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	901	
Prob. of Queue-Free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	149	
Potential Capacity: (pcph)	868	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	868	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	40	868 >					
NB T	0	901 >	984	3.9	0.1	A	3.9
NB R	21	1318 >					

Intersection Delay = 1.0 sec/veh

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Streets: (N-S) McKINLEY (E-W) ALLSTON
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... JN
Date of Analysis..... 6/13/96
Other Information.....
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	14	126	3	10	173	26	10	8	10	32	11	14
PHF	.92	.92	.92	.89	.89	.89	.88	.88	.88	.84	.84	.84
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	138	208
Potential Capacity: (pcph)	1179	1086
Movement Capacity: (pcph)	1179	1086
Prob. of Queue-Free State:	0.99	0.98
Step 2: LT from Major Street	**WB**	**EB**
Conflicting Flows: (vph)	140	223
Potential Capacity: (pcph)	1470	1342
Movement Capacity: (pcph)	1470	1342
Prob. of Queue-Free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.99	0.99
Step 3: TH from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	388	374
Potential Capacity: (pcph)	683	694
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	667	678
Prob. of Queue-Free State:	0.99	0.98
Step 4: LT from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	388	383
Potential Capacity: (pcph)	631	635
Major LT, Minor TH Impedance Factor:	0.96	0.96
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.95	0.96
Movement Capacity: (pcph)	599	610

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	12	599	>					
NB	T	10	667	>	752	5.0	0.0	B	5.0
NB	R	12	1179	>					
SB	L	42	610	>					
SB	T	14	678	>	701	5.8	0.3	B	5.8
SB	R	19	1086	>					
EB	L	17	1342			2.7	0.0	A	0.3
WB	L	12	1470			2.5	0.0	A	0.1

Intersection Delay = 1.2 sec/veh

Existing Plus Project Conditions

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: PLUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	<	1	2	<	1	2	<	1	2	<
Volumes	252	775	77	99	718	142	104	691	83	145	943	66
PHF or PK15	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Lane W (ft)	10.0	11.0		10.0	11.0		10.0	10.0		10.0	11.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	Y	20
Bus Stops			0			0			0			0
Con. Peds			93			32			68			96
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*	*			EB Left	*			
Thru	*	*			Thru	*			
Right	*	*			Right	*			
Peds		*			Peds	*			
SB Left		*			WB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds	*	*			Peds	*			
EB Right					NB Right				
WB Right					SB Right				
Green	7.5P	20.2P			Green	28.5P			
Yellow/AR	3.3	5.0			Yellow/AR	5.5			

Cycle Length: 70 secs Phase combination order: #1 #2 #5

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: PLUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	252	0.97	260	L	260	1	1.000	1.000	260	1.00	0.00
Thru	775	0.97	799	TR	878	2	1.050	1.000	922	0.00	0.09
Right	77	0.97	79								
SB											
Left	99	0.97	102	L	102	1	1.000	1.000	102	1.00	0.00
Thru	718	0.97	740	TR	886	2	1.050	1.000	930	0.00	0.16
Right	142	0.97	146								
EB											
Left	104	0.97	107	L	107	1	1.000	1.000	107	1.00	0.00
Thru	691	0.97	712	TR	798	2	1.050	1.000	838	0.00	0.11
Right	83	0.97	86								
WB											
Left	145	0.97	149	L	149	1	1.000	1.000	149	1.00	0.00
Thru	943	0.97	972	TR	1040	2	1.050	1.000	1092	0.00	0.07
Right	66	0.97	68								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.16	276
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.98	1.00	3543
SB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.18	313
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3503
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.14	242
TR	1900	2	0.93	0.98	1.00	1.00	1.00	1.00	0.98	1.00	3409
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.20	346
TR	1900	2	0.97	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3200

* Value entered by user.

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: PLUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	31
Effective Green Time for Lane Group, g	25.2
Opposing Effective Green Time, go	22.2
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	260
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	5.06
Adjusted Opposing Flow Rate, Vo	930
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.04
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.68
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	16.65
gu=g-gq (or g-gf)	8.55
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.39
fmin	0.16
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	20.2
Effective Green Time for Lane Group, g	22.2
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	102
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.98
Adjusted Opposing Flow Rate, Vo	922
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.96
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.49
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	22.20
fs=(875-0.625Vo)/1000	0.30
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.30
fmin	0.18
fm,(min=fmin;max=1.00)	0.18
flt=[fm+0.91(N-1)]/N	0.18

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5

Effective Green Time for Lane Group, g	31
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.08
Adjusted Opposing Flow Rate, Vo	1092
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.62
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.63
gu=g-gq (or g-gf)	19.37
fs=(875-0.625Vo)/1000	0.19
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.13
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5
Effective Green Time for Lane Group, g	31
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	149
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.90
Adjusted Opposing Flow Rate, Vo	838
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.15
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	6.70
gu=g-gq (or g-gf)	24.30
fs=(875-0.625Vo)/1000	0.35
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	6.34
fmin	0.13
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: PLUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB Lsec.	5	276	0.018	0.360	103	0.049	
Lpri.	255	1652	0.154	0.154	255	1.000	*
Ltot.	260				358	0.726	
TR	922	3543	0.260	0.514	1822	0.506	
SB							
L	102	313	0.326	0.317	103	0.990	*
TR	930	3503	0.265	0.317	1111	0.837	
EB							
L	107	242	0.442	0.443	107	0.998	*
TR	838	3409	0.246	0.443	1510	0.555	
WB							
L	149	346	0.431	0.443	153	0.972	
TR	1092	3200	0.341	0.443	1417	0.771	

Sum (v/s) critical = 0.922
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 1.009

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.726	0.309	9.7	1.000	358	16	4.9	14.6	B	10.0	B
TR	0.506	0.514	8.5	1.000	1822	16	0.2	8.7	B		
SB											
L	0.990	0.317	18.1	1.000	103	16	64.9	83.0	F	27.1	D
TR	0.837	0.317	16.9	1.000	1111	16	4.1	21.0	C		
EB											
L	0.998	0.443	14.8	0.846	107	12	57.4	69.9	F	16.4	C
TR	0.555	0.443	10.9	0.846	1510	12	0.3	9.5	B		
WB											
L	0.972	0.443	14.5	0.846	153	12	40.9	53.1	E	17.0	C
TR	0.771	0.443	12.5	0.846	1417	12	1.4	12.0	B		

Intersection Delay = 17.3 sec/veh Intersection LOS = C

HCS: Signalized Intersection Version 2.4c 08-08-1996 5

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY

Analyst: MM File Name: PLUNIMLK.HC9

Area Type: Other 8-8-96 5 -6 PM

Comment: EXISTING PLUS PROJECT CONDITIONS

Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	260
v/c ratio (x)	0.73
Primary phase effective green	10.80
gq from Supplemental LT Worksheet	16.65
gu from Supplemental LT Worksheet	8.55
Red time (r)	34.00
Arrivals qa = v/(3600(max(x,1)	0.07
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.23
Xperm	0.94
Xprot	0.65
Case	1
Queue at begining of green arrow (Qa)	2.46
Queue at beginning of unsaturated green (Qu)	1.20
Residual queue (Qr)	0.00
Uniform Delay	9.66

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) MARTING LUTHER KING (E-W) ADDISON
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....EXISTING PLUS PROJECT CONDITIONS
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 2	< 0	0	> 2	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	53	1029	45	36	856	31	2	1	70	1	3	117
PHF	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	596	492
Potential Capacity: (pcph)	691	780
Movement Capacity: (pcph)	691	780
Prob. of Queue-Free State:	0.79	0.89
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	1193	985
Potential Capacity: (pcph)	392	507
Movement Capacity: (pcph)	392	507
Prob. of Queue-Free State:	0.89	0.87
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.84	0.80
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	2252	2260
Potential Capacity: (pcph)	53	52
Capacity Adjustment Factor due to Impeding Movements	0.67	0.67
Movement Capacity: (pcph)	36	35
Prob. of Queue-Free State:	0.92	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	2218	2212
Potential Capacity: (pcph)	40	41
Major LT, Minor TH Impedance Factor:	0.65	0.61
Adjusted Impedance Factor:	0.73	0.70
Capacity Adjustment Factor due to Impeding Movements	0.65	0.55
Movement Capacity: (pcph)	26	23

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	2	23	>					
EB	T	1	35	>	394	11.8	0.9	C	11.8
EB	R	86	780	>					
WB	L	1	26	>					
WB	T	3	36	>	447	11.9	1.5	C	11.9
WB	R	143	691	>					
NB	L	65	507			8.1	0.4	B	0.4
SB	L	44	392			10.3	0.3	C	0.4

Intersection Delay = 1.4 sec/veh

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Streets: (N-S) MARTIN LUTHUR KING (E-W) CENTER
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....EXISTING PLUS PROJECT CONDITIONS
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	< 0	0	> 2	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		944	73	66	848					64		147
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	536	
Potential Capacity: (pcph)	741	
Movement Capacity: (pcph)	741	
Prob. of Queue-Free State:	0.77	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	1071	
Potential Capacity: (pcph)	456	
Movement Capacity: (pcph)	456	
Prob. of Queue-Free State:	0.83	
TH Saturation Flow Rate: (pcphpl)	3400	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.77	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1994	
Potential Capacity: (pcph)	56	
Major LT, Minor TH Impedance Factor:	0.77	
Adjusted Impedance Factor:	0.77	
Capacity Adjustment Factor due to Impeding Movements	0.77	
Movement Capacity: (pcph)	43	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB	L	74	43		547.8	5.8	F	170.6
WB	R	171	741		6.3	1.0	B	
SB	L	76	456		9.5	0.6	B	0.7

Intersection Delay = 17.1 sec/veh

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Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: PLALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDTIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	<	1	2	<	1	1	<	1	1	<
Volumes	50	901	65	75	759	41	34	89	48	86	154	81
PHF or PK15	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	(Y/N)	Y	20	(Y/N)	Y	20	(Y/N)	Y	20	(Y/N)	Y	20
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
EB Right					NB Right				
WB Right					SB Right				
Green	38.0A				Green	26.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 70 secs Phase combination order: #1 #5

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: PLALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDTIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	50	0.90	56	L	56	1	1.000	1.000	56	1.00	0.00
Thru	901	0.90	1001	TR	1073	2	1.050	1.000	1127	0.00	0.07
Right	65	0.90	72								
SB											
Left	75	0.90	83	L	83	1	1.000	1.000	83	1.00	0.00
Thru	759	0.90	843	TR	889	2	1.050	1.000	933	0.00	0.05
Right	41	0.90	46								
EB											
Left	34	0.90	38	L	38	1	1.000	1.000	38	1.00	0.00
Thru	89	0.90	99	TR	152	1	1.000	1.000	152	0.00	0.35
Right	48	0.90	53								
WB											
Left	86	0.90	96	L	96	1	1.000	1.000	96	1.00	0.00
Thru	154	0.90	171	TR	261	1	1.000	1.000	261	0.00	0.34
Right	81	0.90	90								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.14	266
TR	1900	2	1.00	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3319
SB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.11	196
TR	1900	2	1.00	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3327
EB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.42	781
TR	1500	1	1.00	0.98	1.00	0.80	1.00	1.00	0.95	1.00	1117
WB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.62	1157
TR	1500	1	1.00	0.98	1.00	0.80	1.00	1.00	0.95	1.00	1117

HCS: Signalized Intersection Version 2.4c 08-08-1996 3

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: PLALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDTIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	38
Effective Green Time for Lane Group, g	38
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	56
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.09
Adjusted Opposing Flow Rate, Vo	933
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.07
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.46
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	8.19
gu=g-gq (or g-gf)	29.81
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	5.50
fmin	0.11
fm,(min=fmin;max=1.00)	0.14
flt=[fm+0.91(N-1)]/N	0.14

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	38
Effective Green Time for Lane Group, g	38
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	83
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.61
Adjusted Opposing Flow Rate, Vo	1127
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.96
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.46
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.58
gu=g-gq (or g-gf)	26.42
fs=(875-0.625Vo)/1000	0.17
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.87
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	26

Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	38
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.74
Adjusted Opposing Flow Rate, Vo	261
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	5.07
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.63
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	4.46
gu=g-gq (or g-gf)	21.54
fs=(875-0.625Vo)/1000	0.71
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	1.97
fmin	0.15
fm,(min=fmin;max=1.00)	0.42
flt=[fm+0.91(N-1)]/N	0.42

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	26
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	96
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.87
Adjusted Opposing Flow Rate, Vo	152
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	2.96
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.63
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	1.06
gu=g-gq (or g-gf)	24.94
fs=(875-0.625Vo)/1000	0.78
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	1.54
fmin	0.15
fm,(min=fmin;max=1.00)	0.62
flt=[fm+0.91(N-1)]/N	0.62

HCS: Signalized Intersection Version 2.4c 08-08-1996 4

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: PLALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDTIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio
NB						
L	56	266	0.211	0.543	144	0.388
TR	1127	3319	0.340	0.543	1802	0.626
SB						
L	83	196	0.423	0.543	106	0.780 *
TR	933	3327	0.280	0.543	1806	0.517
EB						
L	38	781	0.049	0.371	290	0.131
TR	152	1117	0.136	0.371	415	0.366
WB						
L	96	1157	0.083	0.371	430	0.223
TR	261	1117	0.234	0.371	415	0.629 *

Sum (v/s) critical = 0.657
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.719

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib Delay d 2	d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.388	0.543	7.0	0.850	144	16	0.9	6.9	B	7.6	B
TR	0.626	0.543	8.4	0.850	1802	16	0.5	7.7	B		
SB											
L	0.780	0.543	9.6	0.850	106	16	19.7	27.9	D	8.5	B
TR	0.517	0.543	7.7	0.850	1806	16	0.2	6.8	B		
EB											
L	0.131	0.371	11.0	0.850	290	16	0.0	9.4	B	10.4	B
TR	0.366	0.371	12.2	0.850	415	16	0.3	10.6	B		
WB											
L	0.223	0.371	11.5	0.850	430	16	0.0	9.8	B	12.7	B
TR	0.629	0.371	13.7	0.850	415	16	2.1	13.8	B		

Intersection Delay = 8.8 sec/veh Intersection LOS = B

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512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: PLSDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes		> 2	<		> 2	<		> 2	<			
Volumes	77	885	29	149	1074	73	68	440	86			
PHF or PK15	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Lane W (ft)		10.0			10.0			11.0				
Grade		0			0			0				
% Heavy Veh	2	2	2	2	2	2	2	2	2			
Parking	(Y/N)	N		(Y/N)	Y	20	(Y/N)	N				
Bus Stops			4			4			4			
Con. Peds			36			56			44			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N				
Arr Type		3			3			3				
RTOR Vols			0			0			0			
Lost Time	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left		*			EB Left *			
Thru		*			Thru *			
Right		*			Right *			
Peds		*			Peds *			
SB Left	*	*			WB Left			
Thru	*	*			Thru			
Right	*	*			Right			
Peds	*	*			Peds			
EB Right					NB Right			
WB Right					SB Right			
Green	6.0A	35.0A			Green 18.0A			
Yellow/AR	3.0	4.0			Yellow/AR 4.0			

Cycle Length: 70 secs Phase combination order: #1 #2 #5

HCS: Signalized Intersection Version 2.4c 08-08-1996 2

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: PLSDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	77	0.90	86	*DfL	86	1	1.000	1.000	86	1.00	0.00
Thru	885	0.90	983	TR	1015	1	1.000	1.000	1015	0.00	0.03
Right	29	0.90	32								
SB											
Left	149	0.90	166								
Thru	1074	0.90	1193	LTR	1440	2	1.050	1.000	1512	0.12	0.06
Right	73	0.90	81								
EB											
Left	68	0.90	76								
Thru	440	0.90	489	LTR	661	2	1.050	1.000	694	0.11	0.15
Right	86	0.90	96								
WB											

* Denotes a De facto Left-Turn Lane Group

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
DfL	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.10	178
TR	1900	1	0.93	0.98	1.00	1.00	0.98	1.00	0.99	1.00	1702
SB											
LTR	1900	2	0.93	0.98	1.00	0.90	0.99	1.00	0.99	0.78	2410
EB											
LTR	1900	2	0.97	0.98	1.00	1.00	0.99	1.00	0.98	0.99	3464
WB											

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: PLSDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	35
Effective Green Time for Lane Group, g	39
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	86
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.67
Adjusted Opposing Flow Rate, Vo	1512
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	14.70
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.36
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	9.10
gu=g-gq (or g-gf)	29.90
fs=(875-0.625Vo)/1000	0.00
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.10
fm,(min=fmin;max=1.00)	0.10
flt=[fm+0.91(N-1)]/N	0.10

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	20.2
Effective Green Time for Lane Group, g	25.2
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	102
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.98
Adjusted Opposing Flow Rate, Vo	933
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.07
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.32
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	25.20
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.43
fmin	0.16
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5

Effective Green Time for Lane Group, g	34
Opposing Effective Green Time, go	34
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.08
Adjusted Opposing Flow Rate, Vo	1021
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.93
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.35
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.28
gu=g-gq (or g-gf)	22.72
fs=(875-0.625Vo)/1000	0.24
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.12
fm,(min=fmin;max=1.00)	0.12
flt=[fm+0.91(N-1)]/N	0.12

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5
Effective Green Time for Lane Group, g	34
Opposing Effective Green Time, go	34
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	152
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.96
Adjusted Opposing Flow Rate, Vo	745
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	7.24
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.35
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.08
gu=g-gq (or g-gf)	26.92
fs=(875-0.625Vo)/1000	0.41
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	5.27
fmin	0.12
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

HCS: Signalized Intersection Version 2.4c 08-08-1996 4

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: PLSDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: EXISTING PLUS PROJECT CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB							
DfL	86	178	0.483	0.557	103	0.835	
TR	1015	1702	0.596	0.557	948	1.070	
SB							
LTR	1512	2410	0.627	0.643	1549	0.976	*
EB							
LTR	694	3464	0.200	0.271	940	0.738	*
WB							

Sum (v/s) critical = 0.828
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.905

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
DfL	0.835	0.557	9.8	0.850	103	16	27.9	36.2	D	52.6	E
TR	1.070	0.557	11.8	0.850	948	16	44.0	54.0	E		
SB											
LTR	0.976	0.643	9.1	0.850	1549	16	13.0	20.8	C	20.8	C
EB											
LTR	0.738	0.271	17.7	0.850	940	16	2.2	17.2	C	17.2	C
WB											

Intersection Delay = 30.6 sec/veh Intersection LOS = D

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) McKINLEY (E-W) ADDISON
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....EXISTING PLUS PROJECT CONDITIONS
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1 < 0		0	1 < 0		0	> 1 < 0		0	0	0
Stop/Yield			N			N						
Volumes		23	10		73	12	29	0	17			
PHF		.67	.67		.88	.88	.88	.88	.88			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's							1.10	1.10	1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	42	
Potential Capacity: (pcph)	1318	
Movement Capacity: (pcph)	1318	
Prob. of Queue-Free State:	0.98	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	138	
Potential Capacity: (pcph)	923	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	923	
Prob. of Queue-Free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	132	
Potential Capacity: (pcph)	888	
Major LT, Minor TH Impedance Factor:	1.00	
Adjusted Impedance Factor:	1.00	
Capacity Adjustment Factor due to Impeding Movements	1.00	
Movement Capacity: (pcph)	888	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	36	888 >					
NB T	0	923 >	1009	3.8	0.0	A	3.8
NB R	21	1318 >					

Intersection Delay = 1.1 sec/veh

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Ph: (904) 392-0378

Streets: (N-S) McKINLEY (E-W) ALLSTON
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....EXISTING PLUS PROJECT CONDITIONS
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	14	126	3	10	173	18	10	8	10	17	11	14
PHF	.92	.92	.92	.89	.89	.89	.88	.88	.88	.84	.84	.84
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	138	204
Potential Capacity: (pcph)	1179	1091
Movement Capacity: (pcph)	1179	1091
Prob. of Queue-Free State:	0.99	0.98

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	140	214
Potential Capacity: (pcph)	1470	1356
Movement Capacity: (pcph)	1470	1356
Prob. of Queue-Free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.99	0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	378	370
Potential Capacity: (pcph)	691	698
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	675	682
Prob. of Queue-Free State:	0.99	0.98

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	384	378
Potential Capacity: (pcph)	635	640
Major LT, Minor TH Impedance Factor:	0.96	0.96
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.95	0.96
Movement Capacity: (pcph)	603	615

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	603 >					
NB T	10	675 >	757	5.0	0.0	A	5.0
NB R	12	1179 >					
SB L	22	615 >					
SB T	14	682 >	746	5.2	0.1	B	5.2
SB R	19	1091 >					
EB L	17	1356		2.7	0.0	A	0.3
WB L	12	1470		2.5	0.0	A	0.1

Intersection Delay = 1.0 sec/veh

Cumulative Conditions

Center For Microcomputers In Transportation
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Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: CMUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	<	1	2	<	1	2	<	1	2	<
Volumes	309	787	81	103	721	142	104	717	104	150	904	68
PHF or PK15	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Lane W (ft)	10.0	11.0		10.0	11.0		10.0	10.0		10.0	11.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	Y	20
Bus Stops			0			0			0			0
Con. Peds			93			32			68			96
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		4	4		4	4	
RTOR Vols			0			0			0			0
Lost Time	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*	*			EB Left	*			
Thru	*	*			Thru	*			
Right	*	*			Right	*			
Peds		*			Peds	*			
SB Left		*			WB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds	*	*			Peds	*			
EB Right					NB Right				
WB Right					SB Right				
Green	7.5P	20.2P			Green	28.5P			
Yellow/AR	3.3	5.0			Yellow/AR	5.5			

Cycle Length: 70 secs Phase combination order: #1 #2 #5

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: CMUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	309	0.97	319	L	319	1	1.000	1.000	319	1.00	0.00
Thru	787	0.97	811	TR	895	2	1.050	1.000	940	0.00	0.09
Right	81	0.97	84								
SB											
Left	103	0.97	106	L	106	1	1.000	1.000	106	1.00	0.00
Thru	721	0.97	743	TR	889	2	1.050	1.000	933	0.00	0.16
Right	142	0.97	146								
EB											
Left	104	0.97	107	L	107	1	1.000	1.000	107	1.00	0.00
Thru	717	0.97	739	TR	846	2	1.050	1.000	888	0.00	0.13
Right	104	0.97	107								
WB											
Left	150	0.97	155	L	155	1	1.000	1.000	155	1.00	0.00
Thru	904	0.97	932	TR	1002	2	1.050	1.000	1052	0.00	0.07
Right	68	0.97	70								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB										0.16	276
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.95	1652
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.98	1.00	3540
SB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.18	313
TR	1900	2	0.97	0.98	1.00	1.00	1.00	1.00	0.97	1.00	3504
EB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.14	242
TR	1900	2	0.93	0.98	1.00	1.00	1.00	1.00	0.98	1.00	3397
WB											
L	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.20	346
TR	1900	2	0.97	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3197

* Value entered by user.

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: CMUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	31
Effective Green Time for Lane Group, g	25.2
Opposing Effective Green Time, go	22.2
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	319
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	6.20
Adjusted Opposing Flow Rate, Vo	933
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.07
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.68
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	16.72
gu=g-gq (or g-gf)	8.48
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.43
fmin	0.16
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	20.2
Effective Green Time for Lane Group, g	22.2
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	106
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.06
Adjusted Opposing Flow Rate, Vo	940
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.14
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.49
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	22.20
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.51
fmin	0.18
fm,(min=fmin;max=1.00)	0.18
flt=[fm+0.91(N-1)]/N	0.18

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5

Effective Green Time for Lane Group, g	31
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.08
Adjusted Opposing Flow Rate, Vo	1052
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	10.23
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	10.75
gu=g-gq (or g-gf)	20.25
fs=(875-0.625Vo)/1000	0.22
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
Ell	8.20
fmin	0.13
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5
Effective Green Time for Lane Group, g	31
Opposing Effective Green Time, go	31
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	155
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	3.01
Adjusted Opposing Flow Rate, Vo	888
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	8.63
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.41
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.56
gu=g-gq (or g-gf)	23.44
fs=(875-0.625Vo)/1000	0.32
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
Ell	6.91
fmin	0.13
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

HCS: Signalized Intersection Version 2.4c 08-08-1996 4

Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY
Analyst: MM File Name: CMUNIMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB							
Lsec.	64	276	0.232	0.360	103	0.621	
Lpri.	255	1652	0.154	0.154	255	1.000	*
Ltot.	319				358	0.891	
TR	940	3540	0.266	0.514	1821	0.516	
SB							
L	106	313	0.339	0.317	103	1.029	*
TR	933	3504	0.266	0.317	1111	0.840	
EB							
L	107	242	0.442	0.443	107	0.998	
TR	888	3397	0.261	0.443	1504	0.590	
WB							
L	155	346	0.448	0.443	153	1.012	*
TR	1052	3197	0.329	0.443	1416	0.743	

Sum (v/s) critical = 0.941
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 1.029

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.891	0.309	11.8	1.000	358	16	16.3	28.1	D	13.6	B
TR	0.516	0.514	8.5	1.000	1821	16	0.2	8.8	B		
SB											
L	1.029	0.317	18.2	1.000	103	16	78.8	97.0	F	28.8	D
TR	0.840	0.317	16.9	1.000	1111	16	4.2	21.1	C		
EB											
L	0.998	0.443	14.8	0.846	107	12	57.4	69.9	F	16.3	C
TR	0.590	0.443	11.2	0.846	1504	12	0.3	9.8	B		
WB											
L	1.012	0.443	14.8	0.846	153	12	51.9	64.4	F	18.3	C
TR	0.743	0.443	12.3	0.846	1416	12	1.1	11.6	B		

Intersection Delay = 19.0 sec/veh Intersection LOS = C

HCS: Signalized Intersection Version 2.4c 08-08-1996 5

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Streets: (N-S) MARTIN LUTHER KING (E-W) UNIVERSITY

Analyst: MM File Name: CMUNIMLK.HC9

Area Type: Other 8-8-96 5 -6 PM

Comment: CUMULATIVE CONDITIONS

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Supplemental Uniform Delay Worksheet

Approach	Northbound
Adj. LT Vol (v)	319
v/c ratio (x)	0.89
Primary phase effective green	10.80
gq from Supplemental LT Worksheet	16.72
gu from Supplemental LT Worksheet	8.48
Red time (r)	34.00
Arrivals qa = v/(3600(max(x,1)	0.09
Primary Ph. Departures Sp=s/3600	0.46
Secondary Ph. Departures Ss=S(Gq+Gu)/(Gu*3600)	0.23
Xperm	1.16
Xprot	0.80
Case	3
Queue at begining of green arrow (Qa)	3.31
Queue at beginning of unsaturated green (Qu)	1.48
Residual queue (Qr)	0.30
Uniform Delay	11.79

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
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Ph: (904) 392-0378

Streets: (N-S) MARTING LUTHER KING (E-W) ADDISON
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....CUMULATIVE CONDITIONS
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 2	< 0	0	> 2	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	53	1093	44	33	903	31	2	1	70	0	3	114
PHF	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	632	518
Potential Capacity: (pcph)	662	757
Movement Capacity: (pcph)	662	757
Prob. of Queue-Free State:	0.79	0.89
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	1263	1037
Potential Capacity: (pcph)	360	476
Movement Capacity: (pcph)	360	476
Prob. of Queue-Free State:	0.89	0.86
TH Saturation Flow Rate: (pcphpl)	3400	3400
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.83	0.78
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	2372	2379
Potential Capacity: (pcph)	45	44
Capacity Adjustment Factor due to Impeding Movements	0.65	0.65
Movement Capacity: (pcph)	29	29
Prob. of Queue-Free State:	0.90	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	2338	2332
Potential Capacity: (pcph)	34	34
Major LT, Minor TH Impedance Factor:	0.63	0.58
Adjusted Impedance Factor:	0.71	0.67
Capacity Adjustment Factor due to Impeding Movements	0.63	0.53
Movement Capacity: (pcph)	21	18

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	2	18	>					
EB	T	1	29	>	343	14.1	1.1	C	14.1
EB	R	86	757	>					
WB	L	0	21	>					
WB	T	3	29	>	454	11.5	1.4	C	11.5
WB	R	140	662	>					
NB	L	65	476			8.8	0.5	B	0.4
SB	L	41	360			11.3	0.3	C	0.4

Intersection Delay = 1.4 sec/veh

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Ph: (904) 392-0378

Streets: (N-S) MARTIN LUTHUR KING (E-W) CENTER
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....CUMULATIVE CONDITIONS
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	< 0	0	> 2	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		963	85	100	859					83		198
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	*7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	552	
Potential Capacity: (pcph)	727	
Movement Capacity: (pcph)	727	
Prob. of Queue-Free State:	0.69	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	1103	
Potential Capacity: (pcph)	438	
Movement Capacity: (pcph)	438	
Prob. of Queue-Free State:	0.74	
TH Saturation Flow Rate: (pcphpl)	3400	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.64	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	2068	
Potential Capacity: (pcph)	50	
Major LT, Minor TH Impedance Factor:	0.64	
Adjusted Impedance Factor:	0.64	
Capacity Adjustment Factor due to Impeding Movements	0.64	
Movement Capacity: (pcph)	32	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	96	32		*	9.0	F	347.1
WB R	229	727		7.2	1.5	B	
SB L	116	438		11.2	1.1	C	1.2

Intersection Delay = 43.1 sec/veh

* The calculated value was greater than 999.9.

HCS: Signalized Intersection Version 2.4c 08-08-1996 1

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Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: CMALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	<	1	2	<	1	1	<	1	1	<
Volumes	50	923	68	81	783	41	34	85	48	86	164	85
PHF or PK15	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Grade		0			0			0			0	
% Heavy Veh	2	2	2	2	2	2	2	2	2	2	2	2
Parking	(Y/N)	Y	20	(Y/N)	Y	20	(Y/N)	Y	20	(Y/N)	Y	20
Bus Stops			0			0			0			0
Con. Peds			0			0			0			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N		(Y/N)	N	
Arr Type	3	3		3	3		3	3		3	3	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left	*				EB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
SB Left	*				WB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
EB Right					NB Right				
WB Right					SB Right				
Green	38.0A				Green	26.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 70 secs Phase combination order: #1 #5

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: CMALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	50	0.90	56	L	56	1	1.000	1.000	56	1.00	0.00
Thru	923	0.90	1026	TR	1102	2	1.050	1.000	1157	0.00	0.07
Right	68	0.90	76								
SB											
Left	81	0.90	90	L	90	1	1.000	1.000	90	1.00	0.00
Thru	783	0.90	870	TR	916	2	1.050	1.000	962	0.00	0.05
Right	41	0.90	46								
EB											
Left	34	0.90	38	L	38	1	1.000	1.000	38	1.00	0.00
Thru	85	0.90	94	TR	147	1	1.000	1.000	147	0.00	0.36
Right	48	0.90	53								
WB											
Left	86	0.90	96	L	96	1	1.000	1.000	96	1.00	0.00
Thru	164	0.90	182	TR	276	1	1.000	1.000	276	0.00	0.34
Right	85	0.90	94								

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.13	248
TR	1900	2	1.00	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3318
SB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.11	196
TR	1900	2	1.00	0.98	1.00	0.90	1.00	1.00	0.99	1.00	3328
EB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.40	738
TR	1500	1	1.00	0.98	1.00	0.80	1.00	1.00	0.95	1.00	1117
WB											
L	1900	1	1.00	0.98	1.00	1.00	1.00	1.00	1.00	0.63	1176
TR	1500	1	1.00	0.98	1.00	0.80	1.00	1.00	0.95	1.00	1117

HCS: Signalized Intersection Version 2.4c 08-08-1996 3

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: CMALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	38
Effective Green Time for Lane Group, g	38
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	56
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.09
Adjusted Opposing Flow Rate, Vo	962
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.35
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.46
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	8.67
gu=g-gq (or g-gf)	29.33
fs=(875-0.625Vo)/1000	0.27
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
Ell	5.80
fmin	0.11
fm,(min=fmin;max=1.00)	0.13
flt=[fm+0.91(N-1)]/N	0.13

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	38
Effective Green Time for Lane Group, g	38
Opposing Effective Green Time, go	38
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	90
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.75
Adjusted Opposing Flow Rate, Vo	1157
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	11.25
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.46
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	12.16
gu=g-gq (or g-gf)	25.84
fs=(875-0.625Vo)/1000	0.15
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
Ell	9.50
fmin	0.11
fm,(min=fmin;max=1.00)	0.11
flt=[fm+0.91(N-1)]/N	0.11

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	26

Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	38
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	0.74
Adjusted Opposing Flow Rate, Vo	276
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	5.37
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.63
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	4.97
gu=g-gq (or g-gf)	21.03
fs=(875-0.625Vo)/1000	0.70
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	2.04
fmin	0.15
fm,(min=fmin;max=1.00)	0.40
flt=[fm+0.91(N-1)]/N	0.40

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	26
Effective Green Time for Lane Group, g	26
Opposing Effective Green Time, go	26
Number of Opposing Lanes, No	1
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	96
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.87
Adjusted Opposing Flow Rate, Vo	147
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	2.86
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	3
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.63
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.91
gu=g-gq (or g-gf)	25.09
fs=(875-0.625Vo)/1000	0.78
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	1.53
fmin	0.15
fm,(min=fmin;max=1.00)	0.63
flt=[fm+0.91(N-1)]/N	0.63

HCS: Signalized Intersection Version 2.4c 08-08-1996 4

Streets: (N-S) MARTIN LUTHER KING (E-W) ALLSTON
Analyst: MM File Name: CMALLMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB							
L	56	248	0.226	0.543	135	0.416	
TR	1157	3318	0.349	0.543	1801	0.642	
SB							
L	90	196	0.459	0.543	106	0.846	*
TR	962	3328	0.289	0.543	1807	0.532	
EB							
L	38	738	0.051	0.371	274	0.139	
TR	147	1117	0.132	0.371	415	0.354	
WB							
L	96	1176	0.082	0.371	437	0.220	
TR	276	1117	0.247	0.371	415	0.665	*

Sum (v/s) critical = 0.706
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.772

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
L	0.416	0.543	7.2	0.850	135	16	1.2	7.3	B	7.8	B
TR	0.642	0.543	8.5	0.850	1801	16	0.6	7.8	B		
SB											
L	0.846	0.543	10.3	0.850	106	16	29.0	37.8	D	9.5	B
TR	0.532	0.543	7.8	0.850	1807	16	0.2	6.9	B		
EB											
L	0.139	0.371	11.1	0.850	274	16	0.0	9.4	B	10.3	B
TR	0.354	0.371	12.1	0.850	415	16	0.2	10.5	B		
WB											
L	0.220	0.371	11.4	0.850	437	16	0.0	9.8	B	13.4	B
TR	0.665	0.371	14.0	0.850	415	16	2.8	14.6	B		

Intersection Delay = 9.3 sec/veh Intersection LOS = B

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University of Florida
512 Weil Hall
Gainesville, FL 32611-2083 (904) 392-0378

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: CMUDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Traffic and Roadway Conditions

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes		> 2	<		> 2	<		> 2	<			
Volumes	77	885	32	151	1090	85	80	445	86			
PHF or PK15	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Lane W (ft)		10.0			10.0			11.0				
Grade		0			0			0				
% Heavy Veh	2	2	2	2	2	2	2	2	2			
Parking	(Y/N)	N		(Y/N)	Y	20	(Y/N)	N				
Bus Stops			4			4			4			
Con. Peds			36			56			44			0
Ped Button	(Y/N)	N		(Y/N)	N		(Y/N)	N				
Arr Type		3			3			3				
RTOR Vols			0			0			0			
Lost Time	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00			

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
NB Left		*			EB Left	*			
Thru		*			Thru	*			
Right		*			Right	*			
Peds		*			Peds	*			
SB Left	*	*			WB Left				
Thru	*	*			Thru				
Right	*	*			Right				
Peds	*	*			Peds				
EB Right					NB Right				
WB Right					SB Right				
Green	6.0A	35.0A			Green	18.0A			
Yellow/AR	3.0	4.0			Yellow/AR	4.0			

Cycle Length: 70 secs Phase combination order: #1 #2 #5

HCS: Signalized Intersection Version 2.4c 08-08-1996 2

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: CMUDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Volume Adjustment Worksheet

Direction/ Mvt	Mvt Vol	PHF	Adj Vol	Lane Grp	Lane Grp Vol	No. Ln	Lane Util Fact	Growth Fact	Adj Grp Vol	Prop LT	Prop RT
NB											
Left	77	0.90	86	*DfL	86	1	1.000	1.000	86	1.00	0.00
Thru	885	0.90	983	TR	1019	1	1.000	1.000	1019	0.00	0.04
Right	32	0.90	36								
SB											
Left	151	0.90	168								
Thru	1090	0.90	1211	LTR	1473	2	1.050	1.000	1547	0.11	0.06
Right	85	0.90	94								
EB											
Left	80	0.90	89								
Thru	445	0.90	494	LTR	679	2	1.050	1.000	713	0.13	0.14
Right	86	0.90	96								
WB											

* Denotes a De facto Left-Turn Lane Group

Saturation Flow Adjustment Worksheet

Direction /LnGrp	Ideal Sat Flow	No. Lns	f W	f HV	f G	f p	f BB	f A	f RT	f LT	Adj Sat Flow
NB											
DfL	1900	1	0.93	0.98	1.00	1.00	1.00	1.00	1.00	0.10	178
TR	1900	1	0.93	0.98	1.00	1.00	0.98	1.00	0.99	1.00	1701
SB											
LTR	1900	2	0.93	0.98	1.00	0.90	0.99	1.00	0.99	0.78	2404
EB											
LTR	1900	2	0.97	0.98	1.00	1.00	0.99	1.00	0.98	0.99	3463
WB											

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: CMUDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Supplemental Permitted LT Worksheet

APPROACH	NB
Cycle Length, C	70
Actual Green Time for Lane Group, G	35
Effective Green Time for Lane Group, g	39
Opposing Effective Green Time, go	45
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	86
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.67
Adjusted Opposing Flow Rate, Vo	1547
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	15.04
Opposing Platoon Ratio, Rpo	1
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.36
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	9.84
gu=g-gq (or g-gf)	29.16
fs=(875-0.625Vo)/1000	0.00
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.10
fm,(min=fmin;max=1.00)	0.10
flt=[fm+0.91(N-1)]/N	0.10

APPROACH	SB
Cycle Length, C	70
Actual Green Time for Lane Group, G	20.2
Effective Green Time for Lane Group, g	25.2
Opposing Effective Green Time, go	36
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	102
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	1.98
Adjusted Opposing Flow Rate, Vo	933
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.07
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.32
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	0.00
gu=g-gq (or g-gf)	25.20
fs=(875-0.625Vo)/1000	0.29
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	7.43
fmin	0.16
fm,(min=fmin;max=1.00)	0.16
flt=[fm+0.91(N-1)]/N	0.16

APPROACH	EB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5

Effective Green Time for Lane Group, g	34
Opposing Effective Green Time, go	34
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	107
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.08
Adjusted Opposing Flow Rate, Vo	1021
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	9.93
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.35
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	11.28
gu=g-gq (or g-gf)	22.72
fs=(875-0.625Vo)/1000	0.24
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	8.20
fmin	0.12
fm,(min=fmin;max=1.00)	0.12
flt=[fm+0.91(N-1)]/N	0.12

APPROACH	WB
Cycle Length, C	70
Actual Green Time for Lane Group, G	28.5
Effective Green Time for Lane Group, g	34
Opposing Effective Green Time, go	34
Number of Opposing Lanes, No	2
Number of Lanes in Lane Group, N	1
Adjusted Left-Turn Flow Rate, Vlt	152
Proportion of Left Turns in Lane Group, Plt	1.00
Left Turns per Cycle: LTC=Vlt*C/3600	2.96
Adjusted Opposing Flow Rate, Vo	745
Opposing Flow per Lane, Per Cycle: Volc=VoC/3600No	7.24
Opposing Platoon Ratio, Rpo	1.33
Lost time per phase, tl	0
gf=Gexp(-0.882*LTC^0.717)-tl	0.00
Opposing Queue Ratio: qro=1-Rpo(go/C)	0.35
gq = Volc * qro / (.5 - Volc * (1 - qro) / go)-tl	7.08
gu=g-gq (or g-gf)	26.92
fs=(875-0.625Vo)/1000	0.41
Pl=Plt[1+{(N-1)g/(fsgu+4.5)}]	1.00
El1	5.27
fmin	0.12
fm,(min=fmin;max=1.00)	0.15
flt=[fm+0.91(N-1)]/N	0.15

HCS: Signalized Intersection Version 2.4c 08-08-1996 4

Streets: (N-S) MARTIN LUTHER KING (E-W) DWIGHT
Analyst: MM File Name: CMUDWMLK.HC9
Area Type: Other 8-8-96 5 -6 PM
Comment: CUMULATIVE CONDITIONS

Capacity Analysis Worksheet

Direction /LnGrp	Adj Flow Rate (v)	Adj Sat Flow Rate (s)	Flow Ratio (v/s)	Green Ratio (g/C)	Lane Group Capacity (c)	v/c Ratio	
NB							
DfL	86	178	0.483	0.557	103	0.835	
TR	1019	1701	0.599	0.557	948	1.075	
SB							
LTR	1547	2404	0.644	0.643	1545	1.001	*
EB							
LTR	713	3463	0.206	0.271	940	0.759	*
WB							

Sum (v/s) critical = 0.849
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.929

Level of Service Worksheet

Direction /LnGrp	v/c Ratio	g/C Ratio	Delay d 1	Del Adj Fact	Lane Group Cap	Calib Delay d 2	Delay d 2	Lane Grp Del	Lane Grp LOS	Delay By App	LOS By App
NB											
DfL	0.835	0.557	9.8	0.850	103	16	27.9	36.2	D	54.4	E
TR	1.075	0.557	11.8	0.850	948	16	45.9	55.9	E		
SB											
LTR	1.001	0.643	9.5	0.850	1545	16	17.8	25.9	D	25.9	D
EB											
LTR	0.759	0.271	17.8	0.850	940	16	2.5	17.6	C	17.6	C
WB											

Intersection Delay = 33.5 sec/veh Intersection LOS = D

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) McKINLEY (E-W) ADDISON
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....CUMULATIVE CONDITIONS
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	> 1	< 0	0	0	0
Stop/Yield			N			N						
Volumes		23	10	12	73		29	0	17			
PHF		.67	.67	.88	.88		.88	.88	.88			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10			1.10	1.10	1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	42	
Potential Capacity: (pcph)	1318	
Movement Capacity: (pcph)	1318	
Prob. of Queue-Free State:	0.98	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	49	
Potential Capacity: (pcph)	1625	
Movement Capacity: (pcph)	1625	
Prob. of Queue-Free State:	0.99	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.99	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	138	
Potential Capacity: (pcph)	923	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	914	
Prob. of Queue-Free State:	1.00	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	138	
Potential Capacity: (pcph)	881	
Major LT, Minor TH Impedance Factor:	0.99	
Adjusted Impedance Factor:	0.99	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	872	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	36	872	>					
NB	T	0	914	>	996	3.8	0.0	A	3.8
NB	R	21	1318	>					
WB	L	15	1625			2.2	0.0	A	0.3

Intersection Delay = 1.2 sec/veh

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University of Florida
512 Weil Hall
Gainesville, FL 32611-2083
Ph: (904) 392-0378

Streets: (N-S) McKINLEY (E-W) ALLSTON
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... MM
Date of Analysis..... 8/8/96
Other Information.....CUMULATIVE CONDITIONS
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	14	126	3	10	173	10	10	8	10	17	11	14
PHF	.92	.92	.92	.89	.89	.89	.88	.88	.88	.84	.84	.84
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	138	200
Potential Capacity: (pcph)	1179	1096
Movement Capacity: (pcph)	1179	1096
Prob. of Queue-Free State:	0.99	0.98
Step 2: LT from Major Street	**WB**	**EB**
Conflicting Flows: (vph)	140	205
Potential Capacity: (pcph)	1470	1369
Movement Capacity: (pcph)	1470	1369
Prob. of Queue-Free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.99	0.99
Step 3: TH from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	370	366
Potential Capacity: (pcph)	698	701
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	682	685
Prob. of Queue-Free State:	0.99	0.98
Step 4: LT from Minor Street	**NB**	**SB**
Conflicting Flows: (vph)	379	374
Potential Capacity: (pcph)	639	643
Major LT, Minor TH Impedance Factor:	0.96	0.96
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.95	0.96
Movement Capacity: (pcph)	607	618

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)		Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	12	607	>					
NB	T	10	682	>	762	4.9	0.0	A	4.9
NB	R	12	1179	>					
SB	L	22	618	>					
SB	T	14	685	>	750	5.2	0.1	B	5.2
SB	R	19	1096	>					
EB	L	17	1369			2.7	0.0	A	0.3
WB	L	12	1470			2.5	0.0	A	0.1

Intersection Delay = 1.0 sec/veh

Appendix E
AIR QUALITY METHODOLOGY AND ASSUMPTIONS

■ ■ ■

APPENDIX E: AIR QUALITY METHODOLOGY AND ASSUMPTIONS

CALINE-4 MODELING

The CALINE-4 model is a fourth-generation line source air quality model that is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway. Given source strength, meteorology, site geometry and site characteristics, the model predicts pollutant concentrations for receptors located within 150 meters of the roadway.

The CALINE-4 model allows roadways to be broken into multiple links that can vary in traffic volume, emission rates, height, width, etc.. The intersection mode of the model was employed, which distributes emissions along each leg of the intersection for free-flow traffic, idling traffic and accelerating and decelerating traffic.

The worst case mode of the CALINE-4 model was employed. In this mode the wind direction is varied to determine which wind direction results in the highest concentration for each receptor. Emission factors were derived from the California Air Resources Board EMFAC-7F computer model (Version 1.1).

Receptors (locations where the model calculates concentrations) were located at distance of 20 feet from the roadway edge for all four corners of the intersection and at locations 50 feet in either direction, for a total of 12 receptors. Figure 1 is a schematic diagram showing the location of receptors.

The computation of carbon monoxide levels assumed the following worst-case meteorological conditions:

Windspeed: 1 mps
Stability: F Category
Mixing Height: 1000 meters
Surface Roughness: 100 cm
Standard Deviation of Wind Direction: 10 degrees

The CALINE-4 model calculates the local contribution of nearby roads to the total concentration. The other contribution is the background level attributed to more distant traffic. The 1-hour background level was calculated as 5.2 PPM and the 8-hour background level was calculated as 3.9 PPM in the analysis year of 1996. The year 2000 1-hour background was calculated as 4.5 PPM and the year 2000 8-hour background was calculated as 3.4 PPM. These background concentrations were calculated using base year 1992 isopleths of carbon monoxide concentration and correction factors prepared by the Bay Area Air Quality Management District.

To calculate 8-hour concentrations from the 1-hour output of the CALINE-4 model, a persistence factor of 0.70 was employed.

URBEMIS-5

Estimates of regional emissions generated by project traffic were made using a program called URBEMIS-5.[1] URBEMIS-5 is a program which estimate the emissions that result from various land use development projects. Land use project can include residential uses such as single-family dwelling units, apartments and condominiums, and nonresidential uses such as shopping centers, office buildings, and industrial parks. URBEMIS-5 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available.

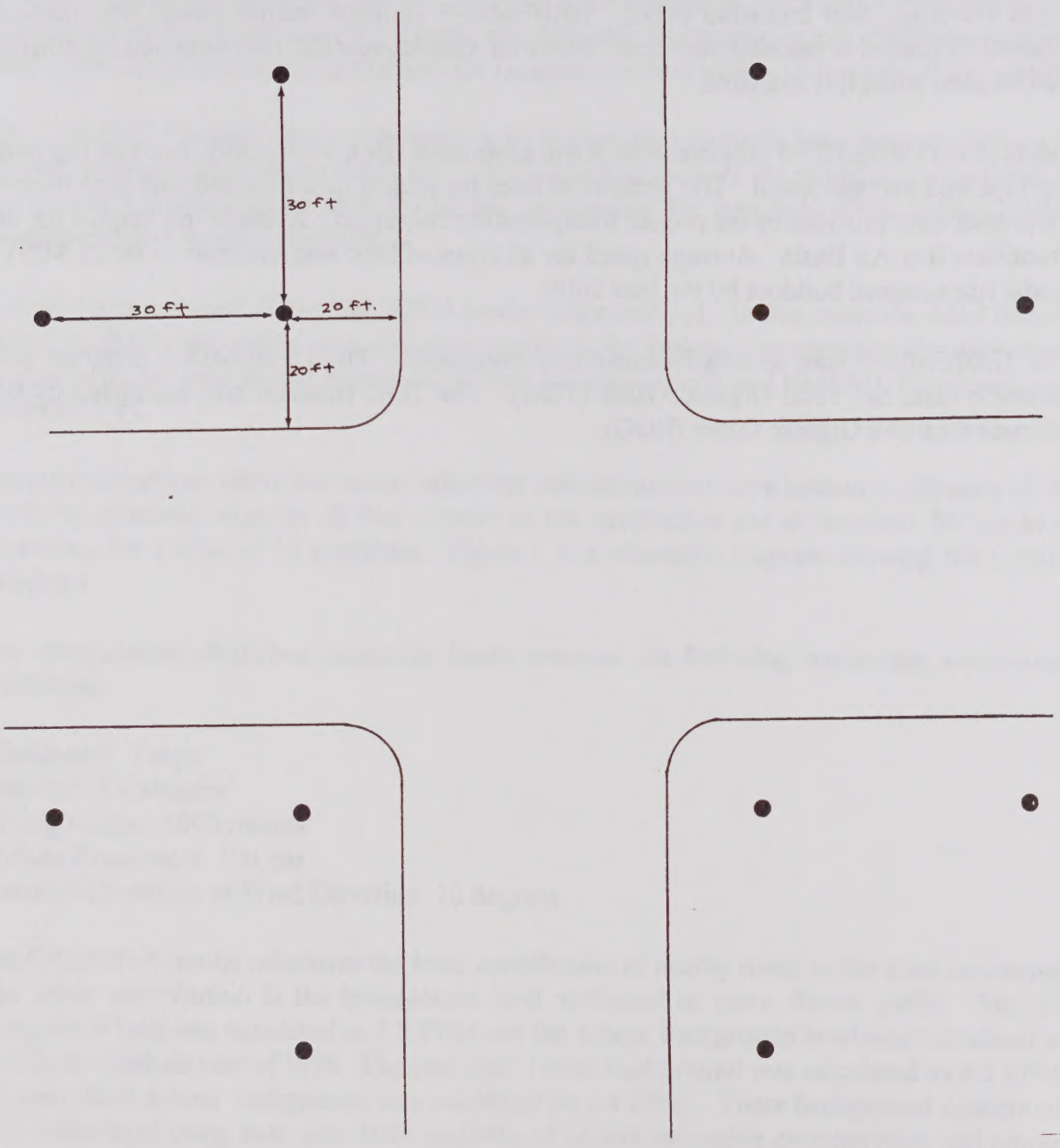
Inputs to the URBEMIS-5 program include trip generation rates, vehicle mix, average trip length by trip type and average speed. Trip generation rates for project land uses and land uses removed by the project were provided by the project transportation consultant. Average trip lengths for the San Francisco Bay Air Basin. Average speed for all types of trips was assumed to be 25 MPH. The model run assumed buildout by the year 2005.

The URBEMIS-5 runs assumed summertime conditions. The URBEMIS-5 program provides emission rates for Total Organic Gases (TOG). The TOG emission was multiplied by 0.91 to estimate Reactive Organic Gases (ROG).

---

[1] California Air Resources Board, URBEMIS-5 Computer Program Version 5.0 User Guide, July 1995.

Figure 1: Location of CALINE-4 Receptors



Appendix F
NOISE BACKGROUND INFORMATION

■ ■ ■

A. Background Information

Noise may be defined as sound which is objectionable and disturbing to some individuals. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity of the vibrations by which it is produced. Higher pitched sounds are usually more annoying to humans than sounds with a lower frequency. Loudness is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement which indicates the relative intensity of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of ten decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness. Human ears also do not respond equally to sounds of all frequencies.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level, or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table F-1. Because sound levels can vary markedly in intensity over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be used. Most commonly, ambient sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common

Table F-1
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

At a Given Distance From Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
	140		
Civil Defense Siren (100')	130		
Jet Takeoff (200')	120		Pain Threshold
	100	Rock Music Concert	
Pile Driver (50')	100		Very Loud
Ambulance Siren (100')			
	90	Boiler Room	
Freight Cars (50')		Printing Press Plant	
Pneumatic Drill (50')	80	In Kitchen with Garbage Disposal Running	
Freeway (100')			
	70		Moderately Loud
Vacuum Cleaner (10')	60	Data Processing Center	
		Department Store	
Light Traffic (100')	50	Private Business Office	
Large Transformer (200')			
	40		Quiet
Soft Whisper (5')	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

Source: Illingworth & Rodkin, Inc., 1996.

averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

Since the sensitivity to noise increases during the evening and at night, a 24-hour descriptor has been developed that incorporates an artificial noise penalty added to quiet-time noise events. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a five dB penalty added to evening (7:00 - 10:00 pm) and a ten dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The Day-Night Average Sound Level, L_{dn} is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the day-time period.

B. Effects of Noise

1. Ear Damage

Exposure to intense noise can produce detrimental changes in the inner ear and seriously decrease the ability to hear. Ear damage is not normally associated with community noise exposure because the levels that are needed to actually damage the auditory receptors of the inner ear are well above those experienced at any reasonable separation between the source and the receiver. Mufflers are required on mobile equipment by the vehicle code, and stationary sources must be muffled to meet the requirements of the City Noise Ordinance.

2. Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard which is set at just below the noise threshold where hearing loss may occur from long-term exposures. The safe maximum level is 90 dB

averaged over eight hours. If the noise level is above 90 dB, the safe exposure dose is correspondingly shorter.

3. Sleep Disturbance

Brief sounds of sufficient intensity and fluctuating noise levels (above 35-45 decibels) have been shown to alter sleep patterns. Interior residential standards for multi-family dwellings are set by the State of California at 45 dB CNEL L_{dn}. The standard is designed for sleep protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 10-15 dB with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dB for an older structure and 25 dB for a newer dwelling. Sleep disturbance is therefore likely when exterior noise levels are 55-60 dB CNEL with open windows and 65- 70 dB CNEL if the windows are closed. Levels of 55-60 dB are common along collector streets and secondary arterials, while 65-70 dB is a typical value for a primary/major arterial. Levels of 75-80 dB are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed, and those facing major roadways and freeways typically need special glass.

4. Stress

Physical stress reactions can be observed when people are exposed to noise levels of 85 dBA or more. Dilated pupils, elevated blood pressure and increased stomach acid leading to nausea are typical reactions when the noise environment is increased above those levels normally found in a community noise environment. While 85 dBA is within OSHA's acceptable occupational exposure, chronic exposure to such levels by employees without hearing protection may lead to increased gastro-intestinal problems, even if the noise level marginally meets workplace standards. Noise above 65 dBA makes it difficult to have a normal conversation without raising one's voice.

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